HOW LOW-SES PARENTS SUPPORT CHILDREN'S ACADEMIC SKILL DEVELOPMENT

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A long history of empirical research demonstrates that socioeconomically disadvantaged children begin school behind their peers and that enrichment activities in the home environment mediate these disparities. This work overlooks the considerable heterogeneity in the parenting practices of low-SES families. This dissertation examined home enrichment practices among low-SES families in greater detail to obtain a nuanced view of the experiences and challenges facing these children at risk of falling behind their peers academically. In Study 1, I used data from the Head Start Family and Child Experiences Survey (FACES 2009) to examine predictors of additional variability in parental enrichment, over and above income and education, among a large sample of low-income families using both variable-centered and person-centered analyses. I found that characteristics such as children's vocabulary and behavioral skills, parent marital status and age, and family residential mobility, explained small but significant portions of additional variance in home enrichment, but the unique accumulation of these factors in latent profile analyses rarely contributed additional information. In Study 2, I explored these issues in greater detail through in-depth, qualitative interviews with a small sample of low-SES parents of young children. Parents described their enrichment activities in the home and any challenges or barriers that interfere with enrichment activities. All parents described substantial challenges in attempting to provide opportunities for learning with their young children but also noted a variety of methods to overcoming these challenges. Together, these results suggest that many low-SES parents' behaviors are related to other factors in the family system (e.g., child interest or behaviors) and

that survey-based measures of the frequency of enrichment activities may not appropriately capture how these parents engage in learning activities with their children.

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1.0 INTRODUCTION

Growing up in a socioeconomically disadvantaged home confers sizeable and enduring risks for children' and adults' academic success. Students from low-income homes are roughly five years behind their higher income peers in terms of reading level by the start of high school (Reardon, Valentino, & Shores, 2012) and are over four times as likely to drop out of school compared to high-income students (Kena et al., 2016). These socioeconomic status (SES) achievement gaps have only widened over the past 30 years and as a result have eclipsed even persistent and well-documented racial achievement disparities in size (Reardon, 2011, 2014).

Although low- and high-SES children experience different school and classroom contexts that likely contribute to some of these findings, SES disparities in achievement are present even prior to school entry, underscoring the role of the family context (Aikens & Barbarin, 2008; Guo & Harris, 2012; Linver, Brooks-Gunn, & Kohen, 2002). In fact, over half of all children living in poverty are academically and behaviorally unprepared for kindergarten by the time they reach five years of age based on standardized assessments and teacher ratings, compared to only one quarter of middle- and high-income children (Isaacs, 2012). Given that math and reading skills at school entry are among the largest predictors of later school success and even adult economic outcomes (Duncan et al., 2007; Ritchie & Bates, 2013), understanding the early emergence of these disparities is crucial.

Decades of research have demonstrated that low- and high-SES parents engage in different types of practices to support their children's learning (Bradley & Corwyn, 2002; McLoyd, 1998). Group-based comparisons suggest that low-SES parents read to their children less often (Bradley, Corwyn, Mcadoo, & Coll, 2001), play with board games and puzzles less frequently (Levine,

Ratliff, Huttenlocher, & Cannon, 2012; Ramani & Siegler, 2008), and even speak less to their children than do high-SES parents (Hart & Risley, 1995; Hoff, 2003, 2013). These cognitively stimulating activities, collectively referred to as the home learning environment (HLE), can foster children's academic skill development and, as such, tend to mediate associations between SES and children's achievement at school entry (Guo & Harris, 2012; Linver et al., 2002; Yeung, Linver, & Brooks-Gunn, 2002). However, insufficient attention has been paid to the heterogeneity of parenting within SES groups. Although associations between SES and the HLE are typically statistically significant, they are often moderate in magnitude (Davis-Kean, 2005; Foster, Lambert, Abbott-Shim, McCarty, & Franze, 2005; Linver et al., 2002; Mistry, Biesanz, Chien, Howes, & Benner, 2008), suggesting that SES cannot fully explain differences in parental enrichment and thus numerous other factors may be implicated in these processes. Furthermore, low-SES families often experience a host of other stressors and challenges in addition to low income or limited parental education (Ackerman, Izard, Schoff, Youngstrom, & Kogos, 1999; Rutter, 1979; Sameroff, Seifer, Zax, & Barocas, 1987), yet scant research has addressed how these other contextual factors in tandem with SES might relate to low-SES parents' provision of cognitive stimulation in the home.

In sum, the extant research base has investigated how the HLE may mediate associations between SES and children's achievement without fully accounting for the complexity of these processes. Specifically, we know very little about why and how low-SES parents differ in their provision of the HLE even though the HLE may buffer children against the negative effects of low-SES (Benzies & Mychasiuk, 2009; Siraj-Blatchford, Mayo, & Melhuish, 2011). To address these limitations and important gaps in the literature, the proposed dissertation project explored HLE practices among low-SES families in greater detail to obtain a nuanced view of the

experiences and challenges facing these children at risk of falling behind their peers academically using a large-scale, longitudinal study as well as a small sample of qualitative interviews.

1.1 THEORETICAL FRAMEWORKS

Several existing theories inform the proposed dissertation project. First, theories such as academic socialization demonstrate the centrality of parents' practices for children's academic achievement (Taylor, Clayton, & Rowley, 2004). According to academic socialization, the HLE, together with children's own cognitive skills and temperament and their broader peer, socioeconomic, and cultural contexts, predicts children's academic outcomes. These practices are informed by parents' own experiences with education and their resulting beliefs and values about education. Specifically, the model synthesizes two perspectives on parental influences on children's learning, arguing that both the activities and interactions that parents provide for their children, or "what parents do," and parents' beliefs about and experiences with education, or "who parents are," relate to children's learning.

In order to understand SES differences in these practices, however, it is important to consider how SES operates to influence parents (Duncan & Magnuson, 2003). However, income and education represent unique resources for families and thus likely contribute to parenting in distinct ways. In regards to income, two existing theoretical frameworks help to explain why low-income parents may be less likely to engage in practices to support their children's learning. On the one hand, parental investment theories posit that among low-income families where such resources are scarce, parents are less able to invest time and money in their children (Conger & Dogan, 2007; Conger & Donnellan, 2007; Duncan, Magnuson, & Votruba-Drzal, 2014). This view

is consistent with economic perspectives that view income as part of a family's resources that can be used to promote the positive development of its members (Becker, 1991; Foster, 2002). When these resources are constrained, parents may be less able to invest in their children, including purchasing materials for children, providing children with enriching experiences, and spending time with children (i.e., to offset opportunity costs of spending time away from the labor market). In contrast, according to the family stress model, low-income families also experience higher levels of stress, resulting in strained relationships, family dysfunction, and emotional distress, (Conger & Dogan, 2007; Conger & Donnellan, 2007). Under this theory, the negative developmental outcomes for low-SES children stem from disrupted parenting including harsh behaviors, inconsistency, and low levels of affection that occurs as a result of these psychological stressors. These two perspectives are not necessarily in competition with one another; rather, income may both directly limit a family's financial resources and indirectly limit parents' psychological resources, both of which may have implications for parents' behaviors.

Less is known about the mechanisms through which educational attainment might operate to predict parenting and children's learning. On the one hand, parental education may serve as an opportunity to acquire cultural capital, such that attaining higher levels of education shapes parents' values and approaches to parenting, which in turn can influence children's development (DiMaggio, 1982; Domina & Roksa, 2012). Parents with higher levels of education may also interact with children in qualitatively different ways than do parents with less education, such as by using more complex language, teaching children more effectively, spending more time with children, or engaging more directly in children's learning at home and at school based on their educational experiences (Fan & Chen, 2001; Harris, Terrel, & Allen, 1999; Hart & Risley, 1995; Magnuson, 2007). Although some have argued that education is simply a proxy for parents'

abilities and predispositions, a small body of evidence suggests that at least part of the link between parental education and children's achievement is attributable to causal mechanisms (Black, Devereux, & Salvanes, 2003; Rosenzweig & Wolpin, 1994). Thus, income and educational attainment may theoretically influence parenting through distinct mechanisms.

Finally, a consideration of the broader contexts in which parents with low incomes or limited educational attainment operate is necessary to understand the constraints and additional factors that influence parenting. By focusing exclusively on income, educational attainment, or SES more generally, researchers overlook important contextual factors, such as family structure or work constraints that may influence parents and children as well. In line with this concern, decades of empirical work demonstrate that single risk factors rarely occur in isolation; rather, families experiencing one particular stressor, such as low income, are likely to experience others as well (Rutter, 1979; Sameroff et al., 1987). In fact, some have argued that it is the accumulation of such risk factors that is particularly detrimental for children and parents, as in many cases the sheer number of risks experienced by a family predicts children's outcomes (G. W. Evans, Li, & Whipple, 2013). Although this approach is fairly simplistic, the cumulative risk framework's emphasis on the co-occurrence of risk factors, particularly risk factors across various ecological levels (e.g., child, parent, family, and neighborhood characteristics) is a crucial perspective to take when examining the development of low-SES children.

Based on these various theoretical frameworks, I expect that in addition to SES, co-occurring factors at the child, parent, and family level may also contribute to parents' provision of cognitive stimulation in the home. A visual depiction of this overarching conceptual model is shown in Figure 1 and explains how SES disparities in academic achievement are mediated through parenting practices as well as characteristics of children, parents, and family other than

SES that operate as mechanisms, protective factors, or promotive factors and may also influence parent's behaviors (indicated by bold arrows). Below, I review the empirical literature relevant to this framework. I first briefly discuss research addressing the magnitude and nature of SES differences in academic skills, followed by an examination of how the HLE may mediate these disparities. Then, I describe research exploring the broader contexts and challenges facing low-SES families, including potential explanations for why low-SES parents differ in their practices from their higher-SES peers as well as protective and promotive factors identified in past work.

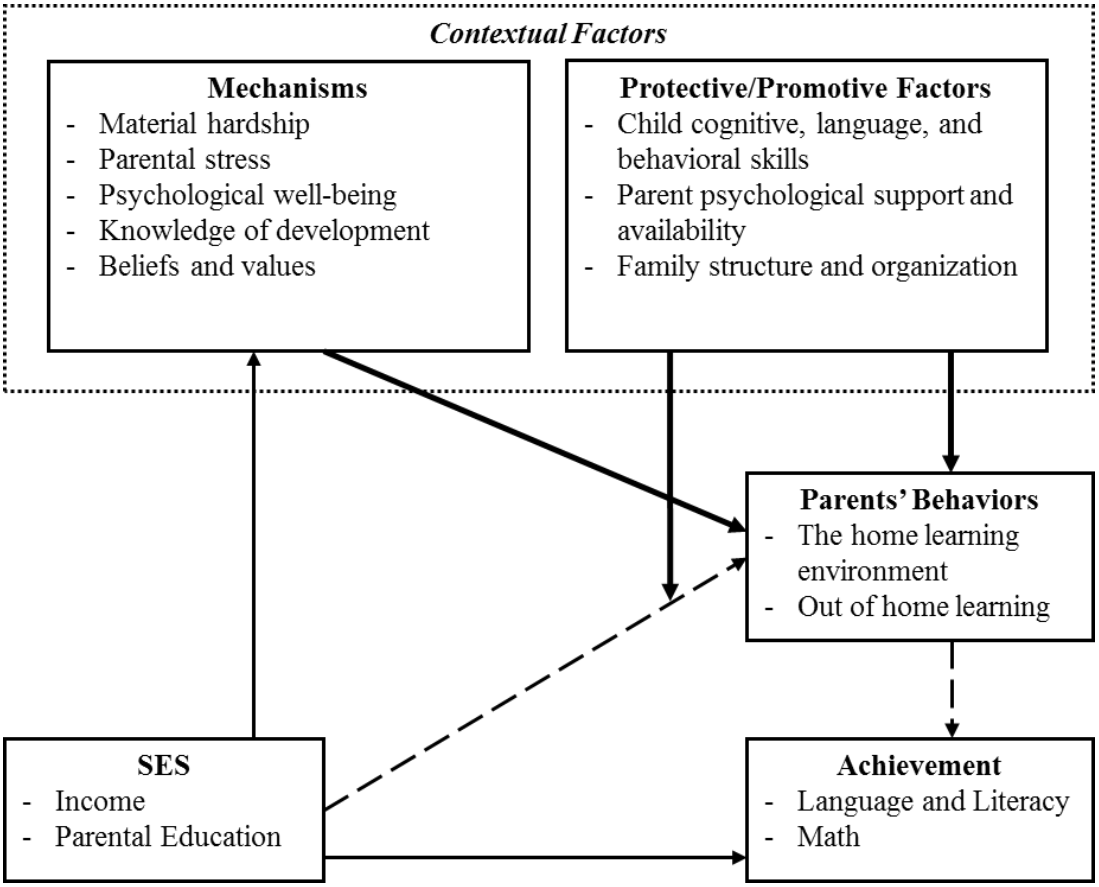

Figure 1. Conceptual model.

1.2 LITERATURE REVIEW

1.2.1 SES Disparities in Academic Achievement and the Home Learning Environment

Sizeable differences in the academic skills of socioeconomically advantaged and disadvantaged children are observed even before children begin school. Duncan and Magnuson (2011) compared the top and bottom 20% of a nationally representative sample of kindergarteners in the U.S. on a composite measure of SES and found that children in the highest SES quintile had reading scores 1.26 standard deviations above children in the lowest quintile and math scores 1.34 standard deviations above their socioeconomically disadvantaged peers. Furthermore, the limited research that has disaggregated SES components suggests that income and education may differentially predict children's achievement (e.g., Reardon, 2011).

Given that sizable disparities in achievement are present even before the start of school, it's important to understand family processes during early childhood that contribute to differences in academic skill. Abundant evidence indicates that parents' provision of enriching activities in the home can benefit children's academic achievement (Cheadle, 2008; Foster et al., 2005; Lagacé-Séguin & Case, 2010; McDonald Connor, Son, Hindman, & Morrison, 2005; NICHD Early Child Care Research Network, 2004; Taylor et al., 2004). Additionally, decades of research have examined how SES relates to the provision of enrichment activities in the home during early childhood (Bornstein & Bradley, 2014; Bradley & Corwyn, 2002; McLoyd, 1998). In fact, several studies have shown that the HLE mediates relationships between SES and achievement in early childhood (e.g., Guo & Harris, 2012; Linver et al., 2002; Zadeh et al., 2010).

Research examining specific domains of enrichment echoes these findings. Practices to support reading and language skills, such as shared book reading (Bus, van IJzendoorn, &

Pellegrini, 1995) and exposure to rich and complex language (Hart & Risley, 1995), predict a wide array of language and emergent literacy skills (Evans & Shaw, 2008; Liebeskind, Piotrowski, Lapierre, & Linebarger, 2014; Payne, Whitehurst, & Angel, 1994; Rodriguez & Tamis-LeMonda, 2011; Sénéchal & Lefevre, 2014; Whitehurst & Lonigan, 1998), and occur more frequently on average in higher SES homes (Bradley et al., 2001; G. W. Evans, 2004; Hart & Risley, 1995; Hoff, 2003; Rowe, 2017). Similarly, math-related activities, such as counting, playing board games, and talking about money, predict children's math skills (Benavides-Varela et al., 2016; Kleemans, Peeters, Segers, & Verhoeven, 2012; Niklas & Schneider, 2014; Ramani & Siegler, 2008; Vandermaas-Peeler, Boomgarden, Finn, & Pittard, 2012; Verdine, Golinkoff, Hirsh-Pasek, & Newcombe, 2014; but see DeFlorio & Beliakoff, 2015; Missall, Hojnoski, Caskie, & Repasky, 2014). Some work also documents SES differences in how parents support their children's burgeoning math skills, including engaging in a broader range of math activities and activities with more complex goals (Saxe, Guberman, & Gearhart, 1987; DeFlorio & Beliakoff; 2014) or playing with specific activities like board games or puzzles more frequently (Levine et al., 2012; Ramani & Siegler, 2008), but these findings are not consistently replicated (LeFevre, Fast, et al., 2010; Niklas & Schneider, 2014; Tudge & Doucet, 2004).

1.2.2 Understanding Parenting in the Context of Low-SES

The existing literature reviewed above would suggest that low-SES children have below average levels of academic achievement due to lower levels of parental cognitive stimulation. However, a small but growing body of research has examined subgroups of low-SES children who nonetheless maintain high levels of academic achievement throughout elementary, middle, and high school (e.g., Wyner, Bridgeland, & Diiulio, 2007). For example. Wyner and his colleagues

(2007) found that 28% of first graders with incomes below the national average were above the 75th percentile in math and reading achievement, a smaller percentage than was observed among children with above average income levels (71%) but a sizeable group of low-income children nonetheless.

Past studies addressing resilient children with positive development in the context of adversity has aimed to identify protective factors that support these unexpectedly positive outcomes (i.e., interactive effects with SES) as well as promotive factors that benefit all children (i.e., additive effects). Although early work addressing resilient children focused on children's own internal, exceptional characteristics, the field has shifted to thinking about protective factors at various ecological levels, including not only the child but also parents, families, and schools (Masten, 2001, 2011). In fact, several researchers have stressed the role of family resilience, or characteristics of the family as a whole that allow for the positive adaptation of its members in the face of stress or challenges (Patterson, 2002; Simon, Murphy, & Smith, 2005; Walsh, 1996). Some work has identified the HLE itself as a protective factor, such that the association between SES and achievement is mitigated when parents provide high levels of enrichment for their children (Benzies & Mychasiuk, 2009; Siraj-Blatchford et al., 2011). However, little is known about why some low-SES parents engage in high levels of cognitive stimulation or the factors that contribute to the HLE among low-SES families in particular. The small to moderately sized associations between SES and the HLE (Foster et al., 2005; Linver et al., 2002; Mistry, Biesanz, et al., 2008) would suggest that there are likely many low-SES families who engage in high levels of enrichment in the home.

There are several distinct ways that contextual factors may relate to low-SES parents provision of the HLE and thus may explain why some low-SES parents may be engaging in higher

levels of the HLE than expected (see Figure 1 for a visual depiction of each). These contextual factors may act as mechanisms, such that risk factors are present in part because of low-SES, and these risk factors in turn relate to lower levels of the HLE. Although conceptualized as mediating variables, these types of variables may nonetheless relate to individual differences in the HLE if some low-SES parents do not experience these risk factors and, as a result, engage in more enriching practices with their children. Contextual factors may also operate as protective factors among low-SES parents, such that certain variables may attenuate the links between SES and the HLE and thus mitigate the risks associated with low-SES (see Jenson & Fraser, 2015). These protective factors are often modeled as moderators, such that the protective factor is beneficial only among low-SES families. This conceptualization is quite distinct from the mediating mechanisms described above but for the purposes of the present study, these factors may operate similarly, as among low-SES families, the presence of these protective factors (i.e., a significant main effect) may lead to more positive outcomes. Additionally, contextual factors may act as promotive factors, such that their presence predicts positive outcomes across all levels of SES and thus should relate to individual variability in low-SES parents' practices.

Thus, despite the theoretical differences between these types of variables, in the present study I will examine how factors that have been conceptualized in past work mechanisms, protective factors, and promotive factors relate to the HLE among low-SES parents. Below, I first review existing research describing the mechanisms through which SES, in particularly income and educational attainment, may relate to parenting, as disruptions in these theoretically and empirically identified processes are likely to result in more positive outcomes for parents and children. I then discuss past studies identifying additional contextual characteristics that may serve as protective or promotive factors in parental behaviors within low-SES families.

1.2.2.1 Mechanisms underlying income differences in the HLE

A long history of research demonstrates that living in poverty predicts parents' resource strain, in terms of both material and financial resources as well as emotional and psychological resources. In line with the former, several studies have examined material hardship, or the direct, concrete effects of earning limited income, including difficulty paying for food, bills, housing, and other necessities, that often result in inadequate nutrition, frequent moves, and other problems (Gershoff, Aber, Raver, & Lennon, 2007; Jackson & Brooks-Gunn, 2000; Mistry, Lowe, Benner, & Chien, 2008; Raikes & Thompson, 2005; Simons, Lorenz, Conger, & Wu, 1992). Gershoff and her colleagues (2007) found that although income was directly related to some parental behaviors such as investments in children (e.g., purchasing educational materials and engaging in cognitively stimulating activities outside of the home), associations between income and parent characteristics such as stress, marital conflict, depression, and negative views of parents were mediated through the experience of material hardship. These findings that income directly predicts parents' investment behaviors (Berger, Paxson, & Waldfogel, 2009; Linver et al., 2002; Yeung et al., 2002) but indirectly predicts parents' stress and subsequent psychological health through resource strain or material hardship (Mistry, Lowe, et al., 2008; Mistry, Vandewater, Huston, & McLoyd, 2002; Parke et al., 2004) have been well replicated. In fact, associations between material hardship and parental stress are seen across racial/ethnic groups as well as among subsamples of low-, middle-, and high-income families (Gershoff et al., 2007; Raver, Gershoff, & Aber, 2007). This is consistent with evidence suggesting that resource strain appears to be a salient factor in the lives of families even when income only limits parental wants as opposed to needs (Mistry, Lowe, et al., 2008), suggesting that subjective experiences of resource strain or material hardship are likely detrimental across the income spectrum. In turn, this increased parental stress and insults to

parents' psychological well-being take their toll on children as well, likely through negative parenting behaviors and disengagement (Lovejoy, Graczyk, O'Hare, & Neuman, 2000). Disruptions in these pathways may help to explain individual variability in low-income parents' behaviors, and parents may engage in more positive interactions if they experience less material hardship, lower levels of stress, or fewer mental health problems.

1.2.2.2 Mechanisms underlying differences in the HLE by educational attainment

Educational attainment may also relate to the HLE and parenting more generally through distinct pathways that, if interrupted, may explain individual variability among low-SES families. On the one hand, educational attainment may confer knowledge and skills to parents, which could support more developmentally appropriate behaviors (see Rowe, 2017). Parents with higher levels of education have increased access to written materials regarding child development (Bornstein, Cote, Haynes, Hahn, & Park, 2010) and are more likely to turn to professionals, including doctors, nurses, and childcare providers, as opposed to family members for parenting help or advice (Rowe, Denmark, Harden, & Stapleton, 2016). As a result, parents with higher levels of educational attainment tend to have more accurate knowledge of child development, such as when children are expected to meet certain milestones or what activities are appropriate for children of certain ages (Bornstein et al., 2010; Rowe et al., 2016). Thus, parents with higher levels of education may be more able to adjust their language and interaction styles with children depending on children's development and abilities (Rowe, 2008). Alternatively, education may serve as a socialization mechanism that influences parents' beliefs and values, as suggested by models of academic socialization. Parents with lower levels of education typically hold lower expectations for their children's eventual academic attainment and value different types of learning opportunities and skills, including didactic activities in the home and basic skill acquisition, compared to their more

educated peers (Davis-Kean, 2005; Stipek et al., 1992). Parents with higher expectations for their children's educational attainment who place more value on children's learning early on tend to engage in higher levels of enrichment with their children (Davis-Kean, 2005; Davis-Kean & Sexton, 2009; Puccioni, 2015; Sy & Schulenberg, 2005).

1.2.2.3 Protective and promotive factors that may predict the HLE

Disruptions in the mechanisms underlying associations between SES and the HLE is one potential approach to understanding individual variability in the parenting practices of low-SES parents. However, as described above, past literature addressing protective and promotive factors also may offer some insights into the HLE among low-SES parents. Among low-SES parents, both protective and promotive factors are likely to predict positive parenting behaviors; as such, empirical work describing both types of variables are described together below. I first discuss several characteristics of children that may predict parenting behaviors, followed by a review of parent and family characteristics that may relate to individual variability in the HLE.

Child characteristics

As noted above, early work addressing resilient children typically focused on characteristics of children themselves that fostered positive development (Elias & Haynes, 2008; Masten, Fiat, Labella, & Strack, 2015). In comparison, less is known about the ways that children may influence their parents' behavior and the HLE in particular. However, some behavioral genetic research suggests that the HLE is moderately heritable, such that children who are more genetically similar are likely to have more similar experiences in the home (Braungart, Fulker, & Plomin, 1992), suggesting that children may contribute to variability in their own experiences. Specifically, empirical evidence highlights the role of children's cognitive and language skills as

well as interest in promoting enriching practices in the home and child care context (Dale & Crain-Thoreson, 1999; Ramey, Ramey, Lanzi, & Cotton, 2002; Snell, Hindman, & Belsky, 2015), whereas children's behavior problems may limit the extent to which parents can provide high levels of stimulating activities in the home (O'Connor, Deater-Deckard, Fulker, Rutter, & Plomin, 1998; Pianta, Sroufe, & Egeland, 1989).

Parent characteristics

Similarly, limited research has addressed the ways that some parents may be more or less vulnerable to the risks posed by socioeconomic disadvantage. However, some work suggests that internal cognitive and personality factors such as self-efficacy may relate to individual variability in parenting (Siraj-Blatchford et al., 2011), as self-efficacy appears to attenuate associations between SES and parenting stress (Raikes & Thompson, 2005).

Additionally, several studies have demonstrated the importance of perceived social support as a predictor of positive parenting and child development, as parents who feel more supported tend to experience less financial strain and depressive symptomology (Jackson & Brooks-Gunn, 2000; but see Raikes & Thompson, 2005). Perceptions of social support appear to be particularly important for parenting among socioeconomically disadvantaged families with children who nonetheless have high levels of achievement (Pianta et al., 1989; Siraj-Blatchford et al., 2011). For instance, Klebanov, Brooks-Gunn, and Duncan (1994) found that mother's perceptions of social support within and outside the home predicted concurrent measures of HLE practices. Although in this study social support was treated as a mediator of associations between SES and parenting, such that SES negatively predicted social support (see also Evans, 2004), rather than a moderating protective factor, increased perceived social support may be beneficial to low-SES parents as well and thus may help to explain heterogeneity among these parents.

The extant research also suggests that parental work outside the home may relate to processes in the home such as the HLE, although these associations are also quite complex. On the one hand, employment outside the home is likely to increase household resources and thus may be a positive factor for young children, but work-related stress may also spillover into the home environment and could potential have a negative impact as well (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005). Evidence suggests that both of these processes are likely at play among working mothers of young children (Cooklin et al., 2015). Furthermore, associations may depend on the nature of parents' work experience. Among a sample of single mothers, Lleras (2008) found no evidence that working and non-working parents differed in their provision of enrichment activities in the home after controlling for maternal education and family size, but several characteristics of mothers' jobs, including the number of hours worked and hourly pay, uniquely related to the HLE.

Finally, demographic characteristics of parents have been shown to relate to parenting practices. Younger mothers are often less warm and supportive during play and use less complex language with their children, even when controlling for their educational attainment (Culp, Osofsky, & O'Brien, 1996; Rafferty, Griffin, & Lodise, 2011) indicating that parental age may contribute to variability in the HLE. Some evidence also suggests that factors such as immigrant status and parental language may relate to the HLE. In fact, Mistry and her colleagues found that associations between SES and cognitive stimulation in the home were notably stronger among immigrant compared to native-born parents (Mistry, Biesanz, et al., 2008), suggesting that non-native families may be particularly vulnerable to risks conferred by low-SES. However, it is unclear how and why these characteristics of parents would relate to the HLE.

Family characteristics

Finally, characteristics of low-SES families more generally, particularly variability in these family-level characteristics, may relate to differences in how low-SES parents provide opportunities for enrichment with their young children. In addition to differences in financial and human capital resources, low-SES families also often are characterized by different structures, including more single-parent, female-headed households, and more children in the home (Brown, 2017; Furstenberg, 2014). These differences in family structure may constrain family resources if low-SES families have fewer adults and thus fewer potential earners in the home or if resources are distributed across more children (Lleras, 2008; McLanahan, 1985; McLanahan & Percheski, 2008). In fact, some have argued that these changes in family structure over the second half of the 20th century can explain increases in child poverty rates occurring during this same time (Eggebeen & Lichter, 1991; Lerman, 1996).

Unpacking the role that family structure plays in predicting parenting is critical to understanding individual differences in parenting among low-SES families as low-SES families may be particularly vulnerable to differences in family structure. Although family size appears to negatively predict the HLE, these associations are somewhat attenuated among mothers with higher levels of education (Lleras, 2008). Similarly, Cooper and her colleagues found that changes in family structure, such as entering or ending coresidential relationships, was more strongly related to parenting stress among mothers with low levels of education and were primarily explained by changes in resources (Cooper, McLanahan, Meadows, & Brooks-Gunn, 2009), suggesting that for low-SES parents, changes in family structure are perhaps more detrimental. Another study found that SES was more strongly related to children's cognitive skills among children living with single parents compared to married parents, although measures of the home

environment did not appear to mediate this interaction effect (Sarsour et al., 2011). Thus parents in families with more adults or fewer children in the home may be less vulnerable to the risks conferred by low-SES.

Finally, a growing body of literature points to more general characteristics of the home environment as critical for understanding low-SES children's development. The work of Evans and his colleagues consistently demonstrates that low-income families typically live in homes that are more crowded, noisier, and unstructured than those of middle- and high-income families (Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005). Even when controlling for SES, these structural characteristics of the home such as overcrowding and disorganization have been shown to predict aspects of the HLE such as parental responsivity and language with children (Evans, Maxwell, & Hart, 1999; Vernon-Feagans et al., 2012; Vernon-Feagans, Willoughby, & Garrett-Peters, 2016). However, it is unknown how these aspects of family chaos might relate to specific practices in the home.

1.2.2.4 Constellations of contextual factors

As reviewed above, various contextual factors, including mechanisms explaining SES differences in parenting, protective factors, and promotive factors, may explain individual differences in low-SES parents' behaviors. However, the review of this empirical literature clearly illustrates that the experiences and challenges low-SES families face are very complex. On the on hand, families with low levels of income or education often face a host of other risk factors, such as characteristics of family structure like marital status and number of children in the home (see Evans, 2004, for review). It is important to consider how these various risk factors co-occur within individual families in order to obtain a full and nuanced view of families. Most work addressing this accumulation of risk factors has taken a cumulative risk approach, where the number of risk

factors experienced by a family is used as a predictor of children's outcomes and, as such, the particular risk factors that a child or family experiences are irrelevant (Evans et al., 2013). This work was inspired by Rutter's early findings that exposure to a single risk factor, whether it be low SES, maternal mental health problems, or paternal involvement with the criminal justice system, rarely related to children's development, whereas these factors and others were associated with substantial decreases in adaptation when occurring in concert with one another (Rutter, 1979; Wachs, 2000). Since then, numerous studies have found that children experiencing more risk factors tend to have lower academic and cognitive skills at school entry (Fagan & Lee, 2013; Gutman, Sameroff, & Cole, 2003; Sameroff, Seifer, Baldwin, & Baldwin, 1993). Likewise, cumulative risk indices predict parents' behaviors, including parental involvement and engagement, the provision of cognitive stimulation, warmth in the home, and literacy practices (Burchinal, Vernon-Feagans, Cox, & Project, 2008; Jeon et al., 2014; Kluczniok, 2017; Marcella, Howes, & Fuligni, 2014; Mistry, Benner, Biesanz, & Clark, 2010; Trentacosta et al., 2008). In fact, Mistry and her colleagues (2000) found that cognitive stimulation in the home and parental warmth partially mediated links between early risk accumulation and children's achievement. As such, accounting for a broad array of contextual factors and experiences is necessary to understand the processes at play in the provision of cognitive stimulation.

However, low-SES families experiences are also quite variable depending on not just how many but also which risk factors they experience, as different risk factors may have unique implications for the HLE that are not accounted for when simply adding the number of risks a family experiences (see Burchinal, Roberts, Hooper, & Zeisel, 2000, and Evans et al., 2013, for discussion of various approaches). In fact, one study documented sizeable differences in achievement at school entry among children with the same number but different combinations of

risk factors, as children in low-income homes with low levels of maternal education scored roughly one third of a standard deviation below poor children in single parent households on reading assessments (Rathbun, West, & Walston, 2005). Similarly, Roy and Raver (2014) found that certain combinations of risk factors differentially predicted various types of outcomes, as some combinations predicted behavior problems and others academic problems. As such, increased risk factors likely hinder positive development, but the identity of those risk factors plays a role as well.

1.2.3 Limitations of Past Research

The extant literature clearly indicates that low-SES parents may engage in activities to support children's academic skill development less often that their high-SES peers but that there is also substantial variability within low-SES families that may explain additional variability in parenting. However, several limitations of past research are worth noting and will be addressed in the proposed project.

First, past accounts of the HLE as a mediator of SES disparities in achievement are often overly simplistic, with a single indicator of SES relating to one dimension of the HLE. It is particularly concerning that so few studies distinguish between income and education or attempt to account for the unique contributions of each in explaining parenting. Theoretically, both income and education are likely implicated in the HLE. However, we know relatively little about how each operate, such as the relative magnitudes and linearity of these associations, although education appears to be a stronger predictor of achievement and SES is more strongly related to achievement among socioeconomically disadvantaged families (e.g., Dearing, McCartney, & Taylor, 2001; Magnuson, 2007; Reardon, 2011). Relatedly, growing evidence has examined domain-specific practices in the HLE such as home literacy and numeracy practices, but a comprehensive view of

how enrichment across domains differs for families with varying levels of resources, and how these activities relate to reading and math achievement, is warranted. It also remains unclear which aspects of the HLE are related to SES and thus may explain early achievement disparities in math and reading. However, a nuanced view of how SES disparities unfold over time, including what aspects of SES relate to concrete practices in the home, is necessary to develop interventions to alleviate these gaps, warranting a more complex operationalization of the HLE to uncover the nature of these processes.

Additionally, few studies have explored how low-SES parents vary in their provision of enrichment activities in the home during early childhood. Understanding the ways that low-SES parents are able to engage in high levels of enrichment activities in the home is critical, as these very practices may protect children from the risks associated with lower income and educational attainment. Thus unpacking the factors that promote the HLE in the context of socioeconomic disadvantage will offer novel and valuable insights into resilience among low-SES parents and children more generally. Nonetheless, the existing research focuses heavily on group comparisons to explore how low-SES parents differ from their high-SES peers without addressing individual differences among low-SES parents.

To examine this heterogeneity among low-SES parents appropriately, understanding the broader contexts in which these parents and families function is necessary. However, existing additive approaches of accounting for the complexity of these contextual influences such as cumulative risk indices may be too simplistic (Rathbun et al., 2005). Thus additional information regarding the experiences of families as opposed to just SES or metrics of the magnitude of risk would presumably explain differences in parenting as well. Although less frequently used, person-centered approaches such as latent class analysis or latent profile analysis help to account for the

accumulation of unique risk factors (see Raver et al., 2015). Exploring the role of these contextual variables in a nuanced way is critical as to date we know relatively little about the various factors at the child, parent, and family level that might foster high levels of parental enrichment in the context of socioeconomic adversity.

1.3 THE PRESENT STUDY

To address these limitations and remaining questions, this study addresses three central research questions (RQs) based on the theoretical model shown in Figure 1.

RQ 1: What contextual factors explain variability in home learning practices among low-SES families above and beyond income and parental education?

Despite consistent evidence demonstrating the SES predicts the HLE, the small to moderate magnitude of these associations suggest that other factors likely play a substantial role in predicting enrichment practices as well. Likewise, within families with similar levels of resources, it stands to reason that there will be variability in the extent to which parents engage in learning activities with their children. As such, I examined other characteristics of the home environments of low-SES families that might contribute to individual differences in the HLE. Specifically I predicted the HLE from a set of contextual factors that have been described in past research as both potential mediators (e.g., stress, mental health, and parental beliefs), moderating protective factors (e.g., family structure), and additive promotive factors (e.g., child cognitive ability) given that these variables are likely to predict additional variance in parenting over and above income and education. The goal of these analyses was to identify potential risk or promotive factors that relate to individual variability and heterogeneity in parents' practices. Specifically, I utilized a variable-

centered approach to examine how characteristics of the child, parent, family, and broader context predict aspects of the home learning environment among low-SES parents.

RQ 2: Are there constellations of child, parent, and family characteristics that co-occur to either protect economically disadvantaged children from adverse outcomes or place poor children at greater risk for lower achievement?

In addition to the variable-centered analyses presented in RQ 1, I conducted person-centered analyses to explore how these risk and promotive factors across several ecological levels are clustered among families with low levels of SES. These analyses unpacked heterogeneity among the experiences of low-SES families on a more holistic level and addressed the unique experiences and challenges facing families with similar levels of resources. Furthermore, these analyses helped to identify potential interactions to be included in future variable-centered analyses.

RQ 3: What factors do parents consider to be highly influential on their home enrichment practices in the context of socioeconomic adversity?

Finally, I explored the factors and resources that parents themselves consider promotive or supportive in their own experiences with socioeconomic disadvantage through qualitative interviews. Specifically, I used the quantitative findings from the prior RQs to inform interview protocols with low-SES parents who report high and low levels of enrichment in the home.

These research questions were answered through two studies. In Study 1, I used a large, nationally-representative sample of children who entered Head Start in 2009 to answer RQ1 and RQ2. Additionally, to explore individual variability in parents' practices further, I conducted semi-structured, qualitative interviews with parents of low-SES preschoolers in Study 2.

2.0 STUDY 1

2.1 METHODS

2.1.1 Participants

Data for this study were drawn from the Head Start Family and Child Experiences Survey 2009 (FACES 2009), which includes a nationally representative sample of all children in the U.S. who were in their first year of Head Start during 2009-2010. Head Start is a federally funded, comprehensive program for children from birth to age five serving families with total household incomes below 100% of the federal poverty guideline in addition to families receiving public assistance (i.e., Temporary Assistance for Needy Families or Supplemental Security Income). This sample included 3,349 children and their families selected from 486 classrooms in 60 Head Start programs around the country. The 60 Head Start programs were randomly selected from the population of Head Start grantees or delegate agencies excluding programs in Puerto Rico and other U.S. territories, specialized Head Start programs (i.e., American Indian-Alaskan Native programs or Migrant and Seasonal Head Start programs). From the 60 selected and participating programs, 2 centers with newly enrolled students were randomly selected. Three classrooms were sampled from each center, stratified by full-day/part-day status. From each of the enrolled centers (n = 129), 33 children were selected to participate, and informed consent was obtained from parents or guardians of around 90% of all sampled children (see Malone et al., 2013, for more information). These analyses included data from the 3,111 children and the parents who agreed to participate in this study and who had valid parent interview data from the first assessment and valid child

behavioral and cognitive data either from teachers' reports or direct assessments. Most parents in this sample were mothers (88%), including biological, adoptive, or step mothers, although many fathers (7%), grandparents (4%), or other guardians (2%) participated as well.

As the population sampled in this study included all children in their first year of Head Start, the sample included children who would be enrolled in kindergarten the following year (i.e., in 2010) based on age and school district kindergarten age cut-offs (44%), most of whom were four years of age at the start of the study, and children who would enter kindergarten two years later (i.e., in 2011; 56%), most of whom were three years old at the start of the 2009 school year. For the sake of brevity, I refer to these cohorts as four- and three-year-olds, respectively.

2.1.2 Procedures

Data collection varied slightly across the two cohorts of children included in this sample. Four-year-olds were assessed in the fall and spring of the Head Start year (fall 2009 and spring 2010) as well during the spring of the child's kindergarten year (spring of 2011). For three-year-olds who would start kindergarten two years later, assessments occurred in the fall and spring of the Head Start year (fall 2009 and spring 2010), the spring of the child's second year in Head Start (spring 2011), and the spring of the child's kindergarten year (spring 2012).

At each wave of observation, parents participated in computer-assisted telephone interviews addressing a range of topics, including children's development and behavior, characteristics of the home environment, and household demographic information. Additionally, children completed untimed assessments of their cognitive skills administered individually by trained researchers.

2.1.3 Measures

2.1.3.1 SES

Both income and parental education were used as indicators of SES in these data. Total household income was reported at each time point as the exact dollar amount earned per hour, day, week, two weeks, month, or year, depending on parents' preference. Parents who preferred not to report their exact income were asked to select an income range. Families earning less than $25,000 a year were presented with income ranges in $5,000 increments, whereas families earning over $25,000 a year selected from $5,000 increments up to $40,000, $40,001 to $50,000, $50,001 to $75,000, or more than $75,000.

Additionally, parents reported both their own and their partner's level of education at the first interview on a scale from 1 (*up to 8th grade*) through 13 (*professional degree after Bachelor's degree*). The highest level of education of either parent was coded into one of four categories: less than a high school degree (*up to 8th grade, 9th grade through 11th grade, 12th grade but no diploma*), high school degree (*high school equivalent or high school diploma*), some college (*vocational/technical program after high school but no vocational/technical diploma; vocational/technical program after high school, diploma; some college but no degree, or Associate's degree*), Bachelor's degree or higher (*Bachelor's degree, graduate or professional school but no degree*, *Master's degree, Doctorate degree, or Professional degree after Bachelor's degree*).

2.1.3.2 The home learning environment

Measures of the home learning environment included whether parents engaged in 14 different activities with their children, including activities to support math (e.g., playing with

blocks, board games or puzzles, or counting things) as well as more general practices (e.g., playing a game or sport, telling stories; see Appendix A for a full list of relevant items). For each activity, parents indicated whether they or someone else in their family had engaged in that practice in the past week. Four items were identified as *math activities*: playing counting games, playing board games or card games, playing with blocks, and counting different things. The remaining items were categorized as *general activities.* Parents also reported how much time per week was spent reading to their child, in terms of the number of days per week that the child was read to and how long they child was read to on each occasion, and the number of children's books in the home at each wave of assessment, which were used to measure *reading activities*. Finally, parents also reported on activities in the community that may have occurred in the past month, including visiting a library, zoo, or museum. For these 11 activities, parents indicated whether anyone in the home had engaged in the activity in the past month, which was labeled *out of home activities*.

2.1.3.3 Child-level predictors

Language skills

Receptive vocabulary was measured through the Peabody Picture Vocabulary Test (PPVT-4; Dunn, Dunn, & Dunn, 2006), which assesses children's word knowledge by showing children an array of four pictures and asking them to point to the picture that best matches the meaning of a target word provided by the experimenter. Expressive vocabulary was assessed through the Expressive One-Word Picture Vocabulary Test (EOWPVT; Brownell, 2001), in which children are asked to label images presented by an experimenter. Both vocabulary assessments have been shown to be valid and reliable measures in past work (Dunn et al., 2006; Brownell, 2001). Standard scores on both measures were utilized in this study.

Child behaviors

Children's Head Start teachers reported on several aspects of children's behaviors, adapted from the SSRS (Gresham & Elliott, 1990). Teachers were asked to rate how frequently each child in their classroom engaged in 12 behaviors on a 3 point scale (1 = never, 3 = very often), including following directions and working well with other classmates. Responses to these items were averaged to form a composite measure of social skills (α = .89). Teachers also reported on children's behavior problems, including disruptive and aggressive behaviors using items drawn from the Personal Maturity Scale (Entwisle et al., 1987) and the Behavior Problems Index (Peterson & Zill, 1986). Teachers were asked to report how characteristic 14 statements describing problem behaviors such as hitting or fighting with other were of each child in the study. Responses were reported on a scale from 1 (not true) to 3 (very true or often true) and were averaged to form a composite (α = .88).

2.1.3.4 Parent-level predictors

Demographic characteristics of parents (e.g., immigrant status, language proficiency, employment, age) were included as predictors of parents practices, in addition to the psychological scales detailed below. Immigrant status was coded based on whether the respondent reported that they had been born in the U.S. Most of the parents in this sample who were coded as immigrants were Hispanic/Latino (85% of immigrant parents compared to 16% of U.S.-born parents) and were born in Mexico (59%), Central America (13%), South America (7%) or the Caribbean Islands (7%).

Parental depression

Parental depression was measured in the spring of kindergarten through a 12-item version of Centre for Epidemiological Studies Depression scale (CES-D; (Radloff, 1977). Parents were asked to identify how often in the past week they had experienced various symptoms associated with depression, including low mood, loss of appetite, and difficulty focusing, on a scale from 1 (never) to 4 (most of the time). Past work utilizing other versions of this measure have demonstrated that the CES-D is a reliable and valid indicator of depressive symptomatology (Radloff, 1977). In this sample, internal validity for the 12 items was high ($\alpha = .86$).

Social support

Parents also reported on their satisfaction with their level of social support, including both emotional support (e.g., If I have troubles or need advice, I have someone I can talk to) and instrumental support (e.g., If I have an emergency and need cash, family or friends will loan it to me), in the spring of the child's Head Start year. Parents were presented with 6 statements (see Appendix A for a full list) and asked to report whether each was never true, sometimes true, or always true. In this sample, internal validity for this scale was high ($\alpha = .86$).

2.1.3.5 Family- and neighborhood-level predictors

Structural characteristics of families were also included in these analyses, such as family size, marital status (married, previously marries, or never married), whether the child's biological mother is in the home, how many hours the parent(s) work outside of the home, and the number of times the family has moved in the children's life. Additionally, food security and neighborhood violence were included as predictors.

Food security

Parents completed an abbreviated 6-item food security module created based on the full, 18-item scale utilized in the ECLS-K:2011 (Blumberg, Bialostosky, Hamilton, & Briefel, 1999). Parents reported whether they had trouble with their food not lasting and not eating balanced meals in the past year, as well as whether they had ever cut the size of their meals or skipped meals, ate less than they felt they should, or not eaten when hungry because of trouble paying for food. Although this shortened scale does not address children's food security directly and may obscure the most extreme cases of food insecurity, past work does suggest this version of the module is valid, reliable, and reasonable sensitive to variability in food security (Blumberg et al., 1999). USDA coding guidelines were used to calculate food security scores based on parents' responses as either food secure, low food security, or very low food security.

Neighborhood violence

At the first wave of assessment, parents also reported on their exposure to violence in their neighborhood through four items addressing how often they had seen non-violent and violent crime as well as whether they or someone they know had been victims of violent crime. Parents reported whether each event had happened never, once, or more than once in the past year. Internal validity for this scale was good ($\alpha = .73$).

2.1.3.6 Academic skills

At each wave of assessment, several standardized measures of math and reading achievement were administered to children. Children's scores on assessments from the year following kindergarten were included in these analyses.

Language and reading assessments

In addition to language measures administered at the start of Head Start, children also completed measures of vocabulary and preliteracy knowledge at later waves of data collection. Specifically, the PPVT-4 and EOWPVT were administered in the spring of Head Start as well as later waves of data collection to measure children's receptive and expressive vocabulary, respectively. To measure children's emerging literacy knowledge, researchers administered several subtests from the Woodcock-Johnson III Test of Achievement (WJ; Woodcock, McGrew, & Mather, 2001) including the spelling, letter-word identification, and word attack subtests. In the spelling subtest, children were first asked to write specific upper-case and lower-case letters and later asked to write full words or phrases. The letter-word identification subtest measured children's knowledge of letters by asking children to identify individual letters. Both of these measures have high internal reliability during early childhood (McGrew & Woodcock, 2001). Although children also completed the Word Attack subtest of the Woodcock-Johnson, this test was not administered until kindergarten assessments and thus were not available for children in the younger cohort in this sample.

Math assessments

At each wave of data collection, children completed the applied problems subtest of the WJ, which measured children's practical problem solving in math. Children were presented with various applied examples that require them to recognize and implement the correct operation to solve the problem. This measure has also been shown to have high internal validity in past work (McGrew & Woodcock, 2001). Additionally, children completed items drawn from other studies in the Early Childhood Longitudinal Study Series (i.e., the ECLS-Birth Cohort and the ECLS-K Class of 1998-1999), including a counting task and 30 items addressing a broader range of math

skills, such as patterns and measurement, ordinal numbers, and numeral recognition. Past work with the ECLS studies demonstrates that these measures are highly reliable (Najarian et al., 2010; NCES, 2002).

2.1.3.7 Control variables

In addition to these key variables of interest, I included controls for several key demographic variables, including children's gender (1 = *male*), cohort (1 = *4-year-old cohort*), and language spoken at home (1 = *non-English*). Additional controls will include race (dummy codes for Black, Hispanic, Asian and Pacific Islander, and other, with White as the reference group) and relation to the child (1= *non-maternal caregiver*). All models also included several classroom-level controls, including teacher education (dummy codes for Associate's degree and Bachelor's degree or higher, with less than an Associate's as the reference group) and class size, and Head Start program-level controls, including whether the program has a specified curriculum (1 = *yes*) and the availability of other services for families (e.g., child care, medical care, mental health care, dental care, etc.; 1 = *yes*) through the program. Finally, lagged HLE variables from the first time point, including math activities, general activities, out of home activities, and the two reading activities indicators, were included as predictors of later measures of the HLE.

2.1.4 Analytic Plan

Structural equation modeling in Mplus (Muthén & Muthén, 2012) was used to address each RQ in this study. In all analyses, global and comparative model fit were evaluated with conventional fit indices (i.e., non-significant chi-square, RMSEA < .06, CFI > .95, and SRMR < .08; (Hu & Bentler, 1999). Full information maximum likelihood (FIML) was used to handle

missing data (Enders & Bandalos, 2001), and models adjusted for Head Start classroom-level nesting using the cluster command in Mplus. Extensive controls were also included in all models for all endogenous variables to approximate causal inference as best as possible given the use of observational data. Descriptive statistics for key study variables are shown in Table 1. Given the

Table 1. Weighted, descriptive statistics of key study variables in FACES 2009, N = 3,111

Variable	Mean (SD) / %
Academic Achievement	
Language and Literacy	
Receptive Vocabulary	89.92 (14.48)
Expressive Vocabulary	83.56 (13.24)
Letter Word Identification	103.94 (13.87)
Spelling	100.86 (15.36)
Math	
Applied Problems	90.3 (14.83)
ECLS-B Math	15.54 (4.79)
Counting	15.35 (5.50)
SES Variables	
Income (in 10,000's)	2.22 (1.50)
Parental Education (Highest)	
Less than a HS Degree	33
HS Degree/Equivalent	34
Some College	26
Bachelor's Degree	5
Graduate Degree	2
Home Learning Environment (HLE)	
Total HLE (% of all 14 activities)	0.84 (0.14)
Math Activities (count of 2 activities)	1.44 (0.61)
General Activities (% of 10 activities)	0.89 (0.13)
Minutes Read To Per Week	112.07 (96.34)
Number of Books in the Home	39.17 (46.32)
Out of Home Activities	4.06 (2.87)
Contextual Factors	
Child Characteristics	
Receptive Vocabulary	82.00 (19.66)
Expressive Vocabulary	79.28 (15.42)
Behavior Problems	4.83 (4.71)
Parent Characteristics	

Table 1. Weighted, descriptive statistics of key study variables in FACES 2009, N = 3,111 (continued)

Current Age	28.65 (5.83)
Immigrant Status	29
English Proficiency	
English Only	75
English Proficient	19
Not English Proficient	6
Parental Depression	1.42 (0.50)
Social Support	2.52 (0.50)
Family Characteristics	
Household Size	4.63 (1.63)
Minors in the Home	2.62 (1.24)
Marital Status	
Married	30
Not Married	19
Single Parent	51
Hours Working Per Week	18.39 (18.46)
Number of Times Child has Moved	0.53 (0.86)
Food Security	
Food Secure	71
Low Food Secure	20
Very Low Food Secure	9

use of multiple measures of both reading and math achievement, latent variables of skills in each domain were estimated as outcomes in this model. I tested a measurement model of these constructs to ensure that the hypothesized latent variables described here are empirically supported. I then estimated a baseline structural model without the contextual covariates included that regressed achievement outcomes on HLE variables, SES variables, and covariates and regressed HLE variables on SES variables, covariates, and the lagged measures of the HLE.

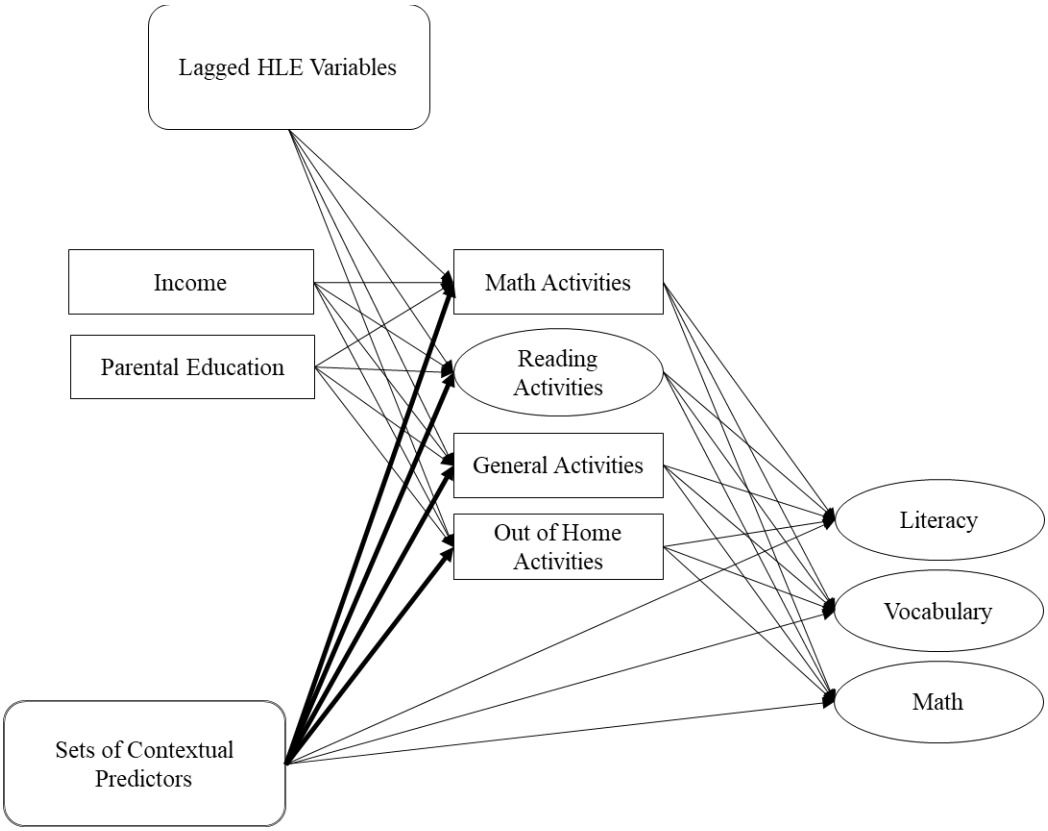

Figure 2. Model of RQ1 examining predictors of parenting that explain additional variance over and above SES variables using data from FACES 2009.

2.1.4.1 RQ1

To test whether child, parent, and family characteristics predicted additional variability in the HLE, I added each set of variables as predictors of HLE variables and achievement to the baseline structural model described above. In these models, depression, neighborhood violence, and social support were modeled as observed composite variables so that these variables could also be used in the same format for RQ2. Specifically, I tested a series of models (see Figure 2) where latent measures of math and reading achievement at the end of the year following Head Start (the kindergarten year for the four-year-old cohort and the second year of Head Start for the three-year-old cohort) were regressed on HLE variables measured in the spring of the Head Start

year and child, parents, and family level factors, as well as income and education, measured in the fall of Head Star. In the Figure, key pathways of interest are shown in bold. Boxes indicate observed variables, whereas ovals represent latent variables with will be estimated from several observed indicator variables. Arrows represent regression paths between variables. All exogenous variables were allowed to correlate with one another (not shown), and control variables (e.g., demographics, other forms of care) were included as predictors of endogenous variables (also not shown). Additionally, HLE variables were regressed on child, parents, and family level factors, as well as income, education, and prior measures of the HLE, measured in the fall of Head Start.

2.1.4.2 RQ2

I then conducted a series of latent profile analyses (LPAs) to examine how child, parent, and family contextual factors might co-occur and cluster together among low-SES families. LPA is a form of mixture modeling in which continuous observed variables are represented by latent categorical variables (Hallquist & Wright, 2014; Muthén, 2001). After identifying profiles, I then compared the level of home learning practices across families classified in each profile in order to understand how the manifestation of multiple risk factors within families related to parenting and to children's development using a three-step estimation process (Asparouhov & Muthén, 2013). Additionally, I saved each child's most likely profile membership as a categorical variable and included this variable as a predictor in the variable-based models described above in RQ1 to assess the added explanatory power of this person-centered approach.

One frequent concern in LPA how to identify the correct number of profiles (i.e., the number of levels of the categorical latent variable). Empirical approaches to model selection are common and include evaluation of information criteria (e.g., BIC values) and empirical tests (e.g., Lo-Mendell-Rubin test; Lo, Mendell, & Rubin, 2001) to compare model fit across solutions with

varying numbers of profiles. Given the large sample size in these analyses, these empirical approaches were likely to yield large numbers of profiles (see Marsh, Lüdtke, Trautwein, & Morin, 2009) that may not replicate in smaller samples. As such, I also considered model parsimony, whether profiles were conceptually distinct from one another (e.g., rejecting solutions in which two or more profiles overlap considerably), and profile group size (e.g., rejecting solutions in which one or more profile includes less than 5% of the sample).

2.2 RESULTS

2.2.1 Preliminary Analyses

2.2.1.1 Baseline measurement model

A series of confirmatory factor analyses were estimated in order to determine the most appropriate method of quantifying parents' practices in the home and children's academic skills. Given the limited variability in many of the dichotomous indicators of home activities, inventories were calculated and modeled as observed variables for several aspects of the home environment, including math activities, general activities, and out of the home activities. Initially, four activities were identified as math-related: playing counting games, playing board games or card games, playing with blocks, and counting different things. However, counting games and block play were negatively related to all math measures at the bivariate level, possibly due to the fact that these activities may not have been developmentally appropriate. As such, only playing board and card games and counting were included in this composite. The general activities inventory included the remaining ten items on this scale. Finally, the total number of outside activities was summed and

also modeled as an observed variable. Home literacy practices were modeled as a latent variable indicated by the number of hours the child was read to per week and the number of books in the home.

A two-factor model of children's math and language achievement was estimated but had very poor fit to the data, $\chi^2(13) = 1200.86$, $p < .001$, RMSEA = .21, CFI = .70, SRMR = .08. As such, this hypothesized model was modified to separate language skills into literacy and language skills. Literacy skills included children's scores on the Letter-Word and Spelling subtests of the Woodcock-Johnson, whereas language skills included expressive and receptive vocabulary. However, factor loadings for the three math measures became unstable when additional predictors were added to the model, suggesting that these aspects of mathematics were differentially related to other factors in the model. As such, in later models each of the three math measures was modeled as observed. Thus, the final model specification for endogenous variables included latent variables only for home literacy practices, language skills, and literacy skills and had good fit to the data, $\chi^2(24) = 133.27$, $p < .001$, RMSEA = .04, CFI = .98, SRMR = .04.

2.2.1.2 Baseline structural model

After establishing the appropriate latent variable specifications, I then estimated a model in which SES variables and covariates were included as predictors of HLE components and children's achievement to be used as a baseline for later models (i.e., where contextual factors would be added as predictors of HLE variables and achievement outcomes). Specifically, each of the three math measures, literacy skills, and vocabulary skills were regressed on parents' literacy, math, general, and out of home activities as well as income, parental education, and the set of covariates. Additionally, all HLE measures were regressed on income, education, and covariates.

Parameter estimates from this model are shown in Table 2. This model had good overall fit, $\chi^2(106) = 643.82$, $p < .001$, RMSEA = .04, CFI = .95, SRMR = .03. Income was significantly related to only literacy activities in the home. In contrast, education predicted all aspects of the HLE, although only marginally for math activities. Similarly, parental education appeared to be more strongly related to children's achievement than did income, even controlling for home learning variables. Household income was significantly predictive of children's literacy scores, whereas education significantly predicted all academic outcomes. In terms of how the HLE predicted these child outcomes, home literacy practices were significantly related to all measures except children' counting skills. Math activities and general activities were unrelated to children's scores across domains. However, outside activities were positively related to children's counting scores.

2.2.2 RQ1: Variable-Centered Analyses

The model tested above was used as a baseline to which additional predictors were added to test RQ1. Specifically, the sets of child, parent, and family predictors were separately included as predictors of all HLE and child outcome variables.

2.2.2.1 Child predictors of the HLE

I first examined how characteristics of children predicted parents' enrichment practices and children's achievement. Including PPVT and EOWPVT scores as well as parent ratings of children's social skills and behavior problems as predictors of the HLE composites and achievement outcomes resulted in a well-fitting overall model, $\chi^2(140) = 1300.49$, $p < .001$, RMSEA = .05, CFI = .90, SRMR = .04. Associations between child characteristics and the HLE

are shown in Table 3. In this model, only expressive vocabulary related to literacy activities, as a SD increase in children's vocabulary skills related to a 0.10 SD increase in literacy activities in this highly controlled model. Child characteristics were all unrelated to math activities. Children with higher social skills received significantly fewer general home learning activities, as a SD increase in social skills related to a 0.06 SD decrease in activities, yet a negative trend emerged between behavior problems and general home activities as well ($\beta = 0.05$). Finally, expressive vocabulary skills were associated with activities occurring outside of the home, as a SD increase in EOWPVT scores predicted a 0.06 SD increase in out of home activities.

Table 2. SES variables predicting HLE composites and academic achievement variables

Predictor	HLE Variables				Academic Achievement				
	Literacy	*Math*	*General*	*Outside*	*Math – AP*	*Math - ECLS*	*Math - Counting*	*Vocabulary*	*Literacy*
Income	0.01	0.004	0.003†	-0.04	0.06*	0.18*	0.09	0.06*	0.05*
	(0.01)	(0.01)	(0.002)	(0.04)	(0.03)	(0.07)	(0.11)	(0.02)	(0.02)
Education									
High School	0.03	0.02	0.03	0.04	0.29**	0.84**	0.57	0.39***	0.24**
	(0.02)	(0.03)	(0.02)	(0.14)	(0.10)	(0.26)	(0.35)	(0.09)	(0.08)
Some College	0.06**	-0.04	0.06**	0.24	0.40***	1.27***	1.12**	0.53***	0.42***
	(0.02)	(0.04)	(0.02)	(0.16)	(0.11)	(0.28)	(0.35)	(0.09)	(0.09)
Bachelor's	0.02	-0.04	0.02	0.55*	0.79***	2.02***	0.05	0.79***	0.51**
	(0.03)	(0.05)	(0.03)	(0.23)	(0.17)	(0.44)	(0.61)	(0.16)	(0.15)
HLE									
Literacy					0.65***	1.67***	-0.10	0.65***	0.26*
					(0.14)	(0.43)	(0.59)	(0.14)	(0.12)
Math					0.001	0.12	0.40	0.01	-0.01
					(0.07)	(0.20)	(0.26)	(0.06)	(0.06)
General					0.21	0.06	-1.15	0.33	0.52*
					(0.33)	(0.84)	(1.09)	(0.24)	(0.25)
Outside					0.01	0.05	0.16*	-0.02	-0.01
					(0.02)	(0.04)	(0.06)	(0.02)	(0.01)
Total R^2	*.75*	*.18*	*.25*	*.16*	*.11*	*.37*	*.13*	*.32*	*.18*

Note. Values shown in the table are unstandardized regression coefficients with standard errors shown in parentheses. Models include controls for child gender, age, language used in the home, respondent race, relationship to child, class size, and teacher education. White mothers with less than a high school degree and female children in the three-year-old cohort who speak English at home in single-parent food-secure households are the reference category in these analyses.

† p < .10, *p < .05, **p < .01, ***p < .001

Table 3. Child-level predictors of aspects of the HLE, controlling for prior enrichment

	HLE Variables			
Predictor	*Literacy*	*Math*	*General*	*Outside*
Income	0.004	0.004	0.004†	-0.04
	(0.01)	(0.01)	(0.002)	(0.04)
Education				
High School	0.02	0.02	0.01	0.02
	(0.02)	(0.03)	(0.01)	(0.14)
Some College	0.05*	-0.04	0.004	0.20
	(0.02)	(0.04)	(0.01)	(0.16)
Bachelor's	0.003	-0.05	-0.01	0.49*
	(0.03)	(0.05)	(0.01)	(0.24)
PPVT	0.06	0.09	0.03	-0.34
	(0.05)	(0.11)	(0.02)	(0.43)
EOWPVT	0.23**	-0.08	-0.01	1.08*
	(0.07)	(0.11)	(0.03)	(0.49)
Social Skills	-0.003	0.001	-0.002	-0.01
	(0.002)	(0.004)	(0.001)	(0.02)
Behavior	-0.0012	-0.003	-0.002†	-0.02
Problems	(0.002)	(0.004)	(0.001)	(0.02)
Total R^2	*.80*	*.13*	*.24*	*.15*
ΔR^2	*.05*	*.00*	*.00*	*.00*

Note. **Values shown in the table are unstandardized regression coefficients with standard errors shown in parentheses. Models include controls for child gender, age, language used in the home, respondent race, relationship to child, class size, and teacher education. White mothers with less than a high school degree and female children in the three-year-old cohort who speak English at home in single-parent food-secure households are the reference category in these analyses.**

$^{\dagger}p < .10$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

Table 4. Parent-level predictors of aspects of the HLE, controlling for prior enrichment

	HLE Variables			
Predictor	*Literacy*	*Math*	*General*	*Outside*
Income	0.01	0.003	0.003	-0.04
	(0.01)	(0.01)	(0.002)	(0.04)
Education				
High School	0.03	0.02	0.01	0.08
	(0.02)	(0.03)	(0.01)	(0.15)
Some College	0.05**	-0.04	0.002	0.26
	(0.02)	(0.04)	(0.01)	(0.16)
Bachelor's	0.01	-0.03	-0.01	0.53*
	(0.03)	(0.06)	(0.01)	(0.24)
Depression	0.02	-0.001	-0.01	-0.01
	(0.02)	(0.03)	(0.01)	(0.11)
Social Support	0.02	0.05	0.01†	0.32†
	(0.02)	(0.03)	(0.01)	(0.18)
Immigrant	-0.001	-0.004	-0.02†	0.23
	(0.02)	(0.05)	(0.01)	(0.19)
English Status				
Proficient	-0.10	-0.31†	-0.004	-0.59
	(0.12)	(0.17)	(0.02)	(0.80)
Not Proficient	-0.09	-0.30†	0.02	-1.12
	(0.12)	(0.17)	(0.02)	(0.81)
Employment	0.001	-0.003	-0.001	-0.03
	(0.004)	(0.01)	(0.002)	(0.03)
Age	0.02	-0.01	0.01*	0.20*
	(0.01)	(0.02)	(0.01)	(0.09)
Total R^2	*.75*	*.18*	*.26*	*.17*
ΔR^2	*.00*	*.00*	*.01*	*.01*

Note. **Values shown in the table are unstandardized regression coefficients with standard errors shown in parentheses. Models include controls for child gender, age, language used in the home, respondent race, relationship to child, class size, and teacher education. White mothers with less than a high school degree and female children in the three-year-old cohort who speak English at home in single-parent food-secure households are the reference category in these analyses.**

$^{\dagger}p < .10$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

2.2.2.2 Parent predictors of the HLE

I then examined how characteristics of parents themselves explained additional variability in parental enrichment practices by including this set of parent variables as predictors of HLE and achievement outcomes. This model had good overall fit to the data, $\chi^2(127) = 672.37$, $p < .001$, RMSEA = .04, CFI = .95, SRMR = .02. Results are shown in Table 4. In models predicting literacy activities, age was no longer a significant predictor of parenting with these more stringent controls. Parental language status was marginally related to math activities, as parents who did not speak English as their primary language engaged in marginally fewer math activities than did English-speaking parents, including a 0.51 SD difference for parents who were proficient in English and a 0.50 SD difference for parents who were not. Associations between social support and general home enrichment activities dropped to trend-level as well, as a SD increase in support related to a 0.05 SD increase in general activities. Immigrant status was also less strongly associated with general home activities when included prior enrichment activities as a predictor, as immigrant parents engaged in only 0.15 SDs fewer general home activities. However, age remained a significant predictor of these general activities ($\beta = 0.04$). Age was also positively related to out of home activities, as a SD increase in age related to a 0.04 SD increase in outside enrichment activities. However, associations between social support and out of home activities dropped to trend-level, as a SD increase in support related to only a 0.06 SD increase in outside activities.

2.2.2.3 Family predictors of the HLE

Finally, the set of family characteristics was included as predictors of the HLE and children's achievement. This model was well-fitting overall, $\chi^2(130) = 672.81$, $p < .001$, RMSEA = .04, CFI = .95, SRMR = .02. As shown in Table 5, parents who were married engaged in 0.17 SDs more reading activities at home. Additionally, parents who reported food insecurity engaged

Table 5. Family-level predictors of aspects of the HLE, controlling for prior enrichment

	HLE Variables			
Predictor	*Literacy*	*Math*	*General*	*Outside*
Income	0.01	0.000	0.003	-0.03
	(0.01)	(0.01)	(0.002)	(0.04)
Education				
High School	0.03	0.03	0.01	0.02
	(0.02)	(0.03)	(0.01)	(0.14)
Some College	0.06**	-0.03	0.01	0.20
	(0.02)	(0.04)	(0.01)	(0.16)
Bachelor's	0.01	-0.04	-0.01	0.48*
	(0.03)	(0.05)	(0.01)	(0.23)
Bio Mom not in Home	0.06	0.05	-0.003	-0.02
	(0.04)	(0.07)	(0.02)	(0.32)
Neighborhood Violence	0.04	0.02	0.01†	0.08
	(0.03)	(0.03)	(0.01)	(0.14)
Household Size	-0.01	0.01	0.000	-0.03
	(0.01)	(0.01)	(0.002)	(0.03)
Marital Status				
Married	0.06**	0.01	0.01	0.07
	(0.02)	(0.04)	(0.01)	(0.14)
Not Married	0.02	-0.02	0.01†	-0.11
	(0.02)	(0.04)	(0.01)	(0.14)
Residential Mobility	0.003	-0.02	-0.01	-0.17*
	(0.01)	(0.02)	(0.004)	(0.07)
Food Insecure				
Low Security	-0.02	-0.06†	-0.02*	0.13
	(0.02)	(0.03)	(0.01)	(0.14)
Very Low Security	0.03	-0.03	0.01	0.26
	(0.03)	(0.05)	(0.01)	(0.18)
Total R^2	*.76*	*.18*	*.26*	*.16*
ΔR^2	*.01*	*.00*	*.01*	*.00*

Note. **Values shown in the table are unstandardized regression coefficients with standard errors shown in parentheses. Models include controls for child gender, age, language used in the home, respondent race, relationship to child, class size, and teacher education. White mothers with less than a high school degree and female children in the three-year-old cohort who speak English at home in single-parent food-secure households are the reference category in these analyses.**

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

in 0.11 SDs less general home activities and 0.09 less math home activities, although this association was only marginally significant for math activities. A non-significant trend also emerged for exposure to violence and general home learning activities, as a SD increase in exposure to violence related to a 0.04 SD increase in home activities. Compared to single parents, parents living in two-parent households who were not married engaged in marginally more general learning activities (0.09 SDs). Finally, residential instability remained a predictor of out of home activities, as a SD increase in the number of times the family had moved predicted a 0.05 SD decrease in outside enrichment activities.

2.2.2.4 Models with predictors across ecological levels

In order to assess how factors across ecological levels operated in concert with one another, I also estimated a model that included all child, parent, and family level characteristics as predictors of each enrichment variable. This model was well-fitting overall, $\chi^2(163) = 821.35$, $p < .001$, RMSEA = .04, CFI = .94, SRMR = .02. Results of this model at shown in Table 6. The pattern of results was largely consistent with models estimated separately by ecological level, although several associations (e.g., associations between parental age and reported general or out of home activities) dropped to trend level.

Table 6. Child-, parent-, and family-level predictors of aspects of the HLE, controlling for prior enrichment

	HLE Variables			
Predictor	*Literacy*	*Math*	*General*	*Outside*
Income	0.01	0.000	0.003	-0.03
	(0.01)	(0.01)	(0.002)	(0.04)
Education				
High School	0.02	0.02	0.01	0.05
	(0.02)	(0.03)	(0.01)	(0.15)
Some College	0.04*	-0.03	0.000	0.22
	(0.02)	(0.04)	(0.01)	(0.17)
Bachelor's	-0.02	-0.03	-0.01	0.45†
	(0.03)	(0.06)	(0.01)	(0.25)
PPVT	0.05	0.05	0.02	-0.22
	(0.05)	(0.08)	(0.02)	(0.42)
EOWPVT	0.22**	-0.08	-0.01	0.92†
	(0.07)	(0.11)	(0.03)	(0.49)
Social Skills	-0.003†	0.002	-0.002*	-0.01
	(0.002)	(0.004)	(0.001)	(0.02)
Behavior Problems	-0.002	-0.002	-0.002*	-0.02
	(0.002)	(0.004)	(0.001)	(0.02)
Depression	0.01	-0.000	-0.01	-0.06
	(0.02)	(0.03)	(0.01)	(0.11)
Social Support	-0.004	0.05	0.01†	0.33†
	(0.02)	(0.03)	(0.01)	(0.18)
Immigrant	0.003	0.01	-0.02†	0.24
	(0.03)	(0.05)	(0.01)	(0.19)
English Status				
Proficient	-0.04	-0.29†	-0.000	-0.60
	(0.13)	(0.16)	(0.02)	(0.80)
Not Proficient	-0.03	-0.30†	0.02	-1.12
	(0.13)	(0.17)	(0.02)	(0.81)
Employment	0.001	-0.001	-0.001	-0.05
	(0.004)	(0.01)	(0.002)	(0.03)
Age	0.02	-0.01	0.01†	0.16†
	(0.02)	(0.02)	(0.01)	(0.09)
Bio Mom not in Home	0.06	0.05	-0.004	-0.12
	(0.05)	(0.08)	(0.02)	(0.32)
Neighborhood Violence	0.03	0.03	0.02*	0.17
	(0.03)	(0.03)	(0.01)	(0.15)
Household Size	-0.01	0.01	0.000	-0.03
	(0.01)	(0.01)	(0.002)	(0.03)
Marital Status				
Married	0.06**	0.01	0.01	-0.03
	(0.02)	(0.04)	(0.01)	(0.14)

Table 6. Child-, parent-, and family-level predictors of aspects of the HLE, controlling for prior enrichment (continued)

Not Married	0.03	-0.02	0.02†	-0.17
	(0.02)	(0.04)	(0.01)	(0.15)
Residential Mobility	0.01	-0.02	-0.004	-0.13*
	(0.01)	(0.02)	(0.004)	(0.07)
Food Insecure				
Low Security	-0.02	-0.04	-0.01	0.13
	(0.02)	(0.03)	(0.01)	(0.14)
Very Low Security	0.02	-0.02	0.02*	0.27
	(0.03)	(0.05)	(0.01)	(0.18)
Total R^2	*.82*	*.18*	*.26*	*.17*
ΔR^2	*.07*	*.00*	*.01*	*.01*

Note. **Values shown in the table are unstandardized regression coefficients with standard errors shown in parentheses. Models include additional controls for child gender, age, and language used in the household, as well as respondent race and relationship to child. Classroom level controls include class size and teacher education. White mothers with less than a high school degree and female children in the three-year-old cohort who speak English at home in single-parent food-secure households are the reference category in these analyses.**

$^{\dagger} p < .10$, $^{*} p < .05$, $^{**} p < .01$, $^{***} p < .001$

2.2.3 RQ2: Person-Centered Analyses

Given the large number of indicators, three sets of LPAs were estimated to answer RQ2: child profiles, parent profiles, and family profiles. Below, I describe the process of identifying the correct number of profiles, the interpretation of each profile, and whether profile membership predicted enrichment outcomes over and above the indicators included in the LPA for each ecological level.

2.2.3.1 Child profiles

Child-level profiles included receptive vocabulary, expressive vocabulary, social skills, and behavior problems as indicators. A four-group solution was identified as the best fitting model, as the Lo-Mendell-Rubin adjusted LRT comparing the four and five group models was not statistically significant (value = 455.24, p = .13). Figure 3 shows the four profiles and Table 7 shows the percentage of the sample that was classified into each profile. All continuous variables were z-transformed prior to analyses, and so values on the y axis represent each profiles' distance from that overall mean on that indicator. Three dimensional profiles emerged, such that children had similar levels across all indicators. For example, the *high performing* subgroup had scores on the vocabulary measures around 0.80 SDs above the mean and scores on the behavioral measures around 0.04 SDs above (or below, for behavior problems) the mean. In contrast, one profile emerged with very negative behaviors, including social skills ratings 1.23 SDs below the mean and behavior problems ratings 1.76 SDs above the mean. This profile, labeled the *behavior problems* subgroup, comprised around 16% of the sample.

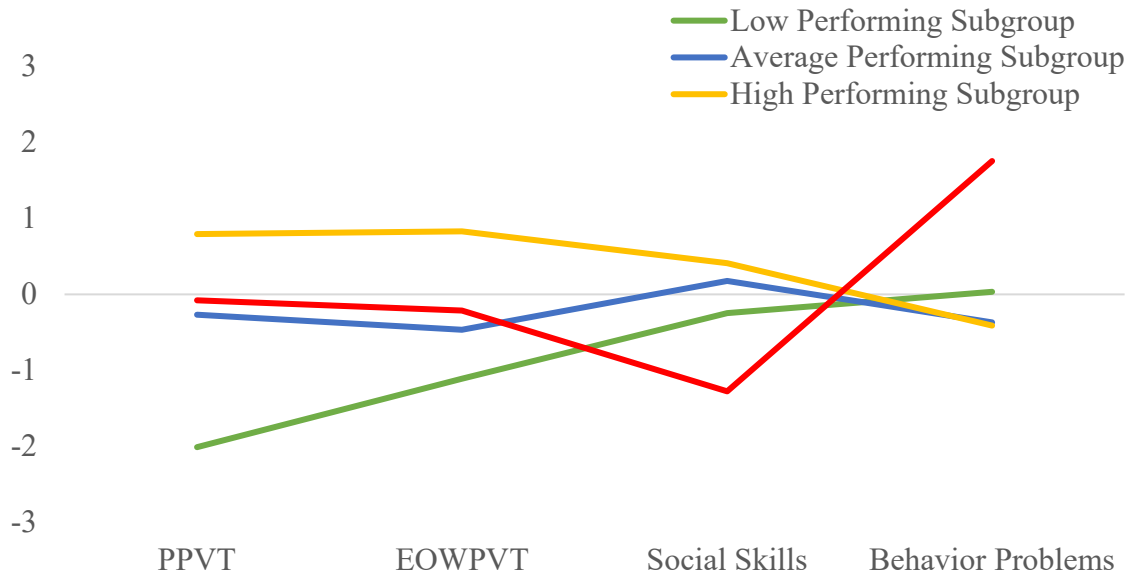

Figure 3. Latent profiles of families calculated based on child contextual predictors.

Table 7. Enrichment and achievement means across profiles estimated from child-level predictors

	Low Performing Subgroup	Average Performing Subgroup	High Performing Subgroup	Behavior Problem Subgroup
	11%	37%	37%	16%
HLE				
Literacy	-0.53***	-	1.20***	0.19
Math	-0.50***	-	0.12†	-0.17†
General	-0.67***	-	0.22**	-0.02
Outside	-0.09	-	0.04	-0.20*
Child Achievement				
Math - AP	-0.90***	-	0.69***	-0.25*
Math - ECLS	-0.78***	-	0.58***	-0.60***
Math - Counting	-0.43***	-	0.10	-0.55***
Vocabulary	-1.73***	-	1.89***	0.35†
Literacy	-0.73***	-	0.57***	-0.50***

Note. **Values in the table reflect the difference from the reference category (i.e., the *average performing* subgroup) in standard deviation units.**

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Estimated means for HLE variables and child achievement outcomes by profile are shown in Table 7. Compared to children in the *average* subgroup children in the *low performing* subgroup received over half a SD less literacy, math, and general home enrichment. In contrast, the children in the *high performing* subgroup received significantly more literacy activities as well as more general home learning activities than their peers in the *average* profile. The only significant

difference in home learning practices between the *behavior problems* and *average* subgroups was in outside activities, as children in the former subgroup were exposed to significantly less out of home learning activities than the latter.

Finally, most likely profile membership was saved as a new variable and then included as a predictor of enrichment variables and child outcomes. Importantly, the individual indicators were retained in these models (i.e., vocabulary and behavior measures were also included as predictors of enrichment and achievement), and so these models serve as a stringent test of whether the accumulation or co-occurrence of certain child characteristics predicts parenting behaviors over and above the individual presence of these characteristics. Profile membership was dummy coded with membership in the *behavior problems* subgroup as the reference group. After accounting for the indicators included in the LPA, profile membership was not predictive of general home learning practices, activities to support math, or out of the home activities. In contrast, parents of children in the *behavior problems* subgroup had literacy enrichment scores significantly below their peers, including 0.02 SDs below parents of children in the *low performing* subgroup and 0.03 SDs below parents of children in the *average performing* subgroup, although latter failed to reach conventional significant levels. Profile membership explained an addition 1% of the variance in reading activities.

2.2.3.2 Parent profiles

Parent-level profiles were estimated based on parental immigrant status, marital status (recoded to married or unmarried), English-language proficiency, hours working per week, age, depression, and social support. A four-group model was identified as the best fitting given a non-significant Lo-Mendell-Rubin adjusted LRT comparing the four and five group models (value = 558.24, $p = .87$). Figure 4 shows the four profiles. Two of these parent profiles were characterized

by high proportion of immigrant parents, including one group with parents who were working full time (the *immigrant, working* subgroup, 11%) and another group with parents who were not working, on average (the *immigrant, not working* subgroup, 18%). Similarly, two subgroups of native-born parents emerged with high (the *native-born, working* subgroup, 40%) and low numbers of hours working (the *native-born, not working* subgroup, 32%). Figure 4 shows the indicator means for each profile, and the proportion of the sample classified in each of the four profiles is shown in Table 8. All continuous variables were z-transformed prior to analyses, and so values on the y axis represent each profiles' distance from that overall mean on that indicator. Values shown for categorical variables (i.e., immigrant status, language status) are expected probability estimates ranging from 0 (i.e., no individuals in this profile would be in this category) to 1 (i.e., all individuals in this profile would be in this category).

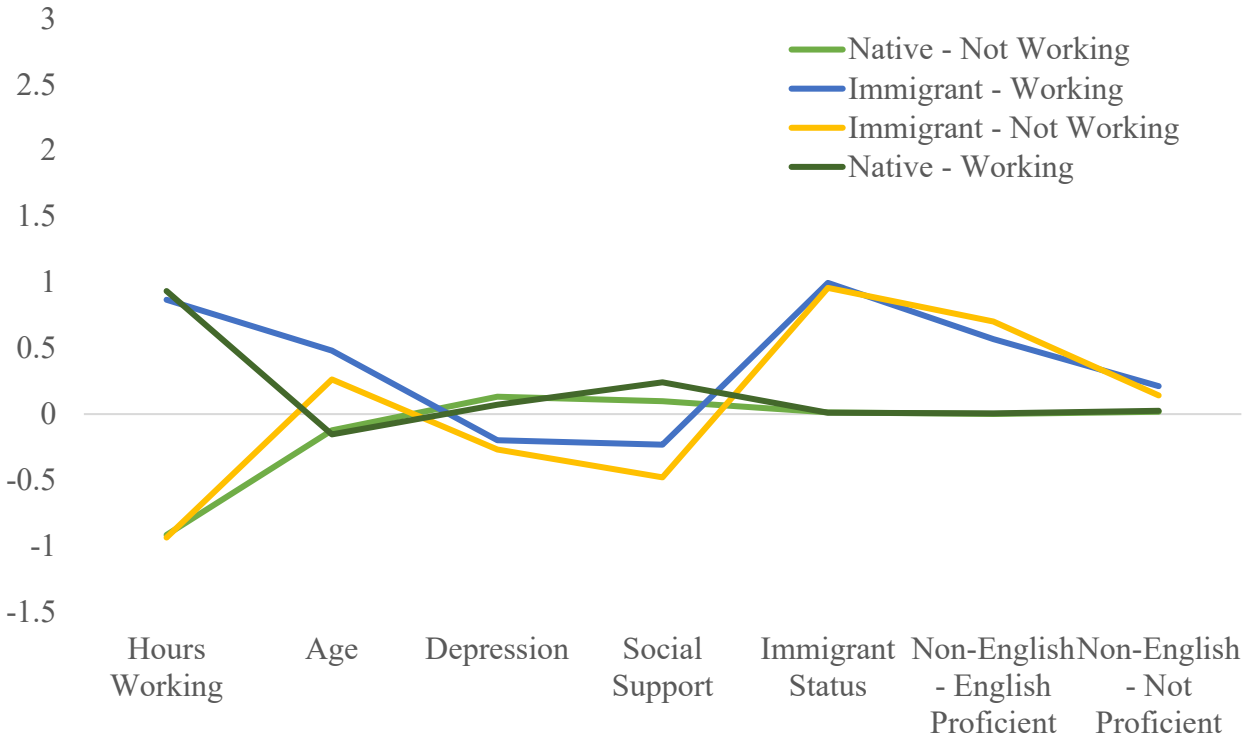

Figure 4. Latent profiles of families calculated based on parent contextual predictors.

Table 8. Enrichment and achievement means across profiles estimated from parent-level predictors

	Native - Not Working	Native - Working	Immigrant - Not Working	Immigrant - Working
	32%	40%	18%	11%
HLE				
Literacy	-	-0.19	-1.24***	-1.15***
Math	-	-0.04	-0.56***	-0.45***
General	-	-0.08	-0.58***	-0.52***
Outside	-	0.05	0.10	0.18**
Child Achievement				
Math - AP	-	-0.01	-0.37**	-0.14
Math - ECLS	-	0.09	-0.14	0.11
Math - Counting	-	0.07	0.02	0.13
Vocabulary	-	-0.001	-1.23***	-0.74***
Literacy	-	0.09	-0.17	0.23*

Note. **Values in the table reflect the difference from the reference category (i.e., the *native, not working* subgroup) in standard deviation units.**

$^{\dagger} p < .10$, $^{*} p < .05$, $^{**} p < .01$, $^{***} p < .001$

As shown in Table 8, no differences were seen in the parental enrichment variables or child achievement outcomes between the *native-born, working* and *native-born, not working* subgroups. However, compared to the *native-born, not working* subgroup, parents in the *immigrant, working* and *immigrant, not working* subgroups engaged in significantly fewer home enrichment activities, including over one SD fewer reading activities and half of one SD fewer math and general home

learning activities. Outside activities were reported more frequently for immigrant parents, but this contrast only reached statistical significance for parents in the *immigrant, working* subgroup. Children in the two subgroups characterized by a high number of immigrant parents also had significantly lower vocabulary scores compared to the *native-born, not working* subgroup, as well as significantly lower scores on the Applied Problems subtest of the Woodcock Johnson (for children of parents in the *immigrant, not working* subgroup) and significantly higher literacy scores (for children in the *immigrant, working* subgroup).

As with the child-level LPA, profile membership was then saved and dummy coded, here with the *native-born, not working* group as the reference group, to be included in the model from RQ2. Specifically, dummy codes for membership in the *native-born, working* subgroup, the *immigrant, not working* subgroup, and the *immigrant, working* subgroup were included as predictors of enrichment and achievement variables, in addition to the parent-level indicators (including immigrant status and employment), SES variables, and covariates. Profile membership was not a significant predictor of reading, math, general, or out of home learning activities.

2.2.3.3 Family profiles

Finally, a series of LPAs were estimated with family-level factors (i.e., family size, whether the child's biological mother was in the home, residential moves, marital status, food insecurity, and neighborhood violence were estimated. Two profiles of families were identified, as the Lo-Mendell-Rubin adjusted LRT comparing the two and three group models was not statistically significant (value = 681.98, p = .17). One profile, the *average* subgroup, included 87% of the sample and was characterized by values close to the mean across all indicators. In contrast, the *high violence exposure group* included families with scores on the exposure to violence scale over 2 SDs above the mean. Profiles are shown in Figure 5. All continuous variables were z-transformed

prior to analyses, and so values on the y axis represent each profiles' distance from that overall mean on that indicator. Values shown for categorical variables (i.e., biological mother presence, food security, marital status) are expected probability estimates ranging from 0 (i.e., no individuals in this profile would be in this category) to 1 (i.e., all individuals in this profile would be in this category).

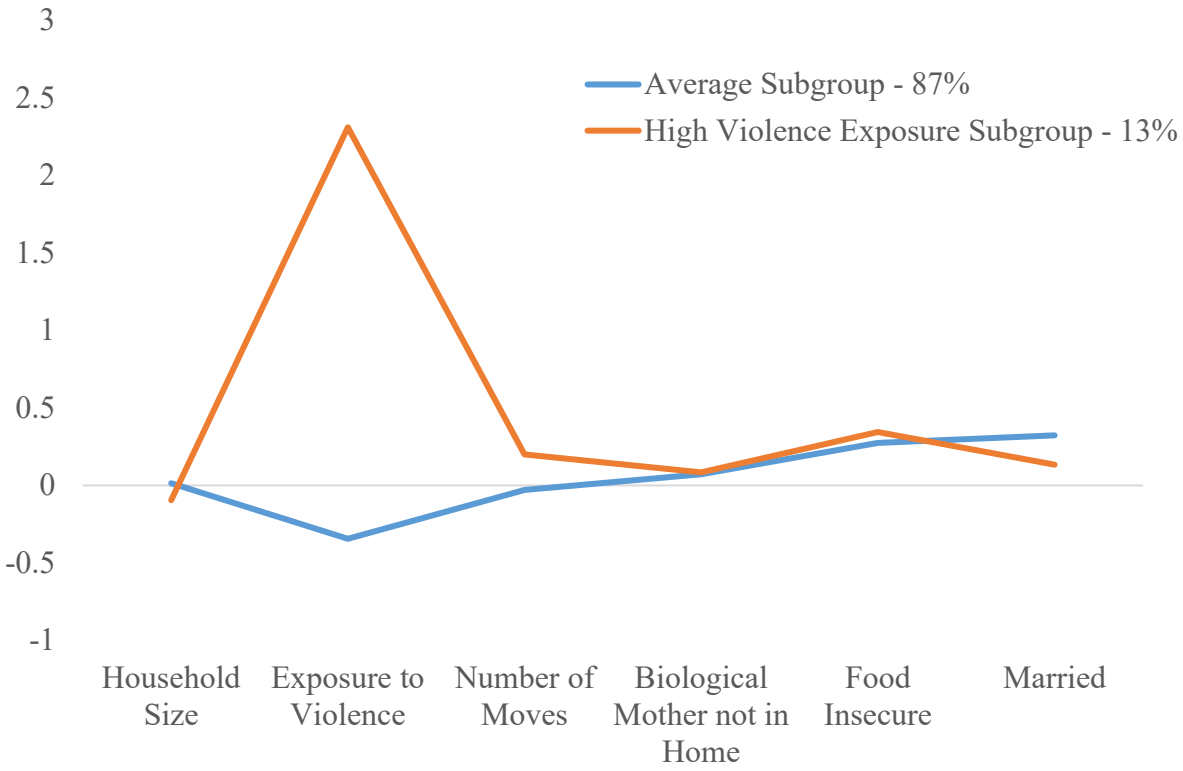

Figure 5. Latent profiles of families calculated based on family contextual predictors.

Table 9. Enrichment and achievement means across profiles estimated from family-level predictors

	Average Subgroup	High Violence Exposure Subgroup
	87%	13%
HLE		
Literacy	-	0.21
Math	-	0.15*
General	-	0.15*
Outside	-	0.06
Child Achievement		
Math - AP	-	-0.02
Math - ECLS	-	-0.14†
Math - Counting	-	0.05
Vocabulary	-	0.17*
Literacy	-	-0.05

Note. **Values in the table reflect the difference from the reference category (i.e., the *average* subgroup) in standard deviation units.**

†*p* < .10, **p* < .05, ***p* < .01, ****p* < .001

Profile means for children's achievement and home enrichment variables are shown in Table 9. Parents in the *high violence exposure* subgroup reported 0.15 SDs higher math and general home activities than did parents who were classified into the *average* subgroup. Additionally, children in families classified in the *high violence exposure* subgroup had significantly higher vocabulary scores (0.17 SDs) and marginally lower scores on the math measure from the ECLS

(0.14 SDs). However, when profile membership was included as a predictor of enrichment variables, membership in the *high violence exposure* subgroup compared to the *average* subgroup did not relate to reading, math or general home activities or to outside enrichment activities.

2.2.3.4 Alternative profile specification

In order to examine how contextual factors co-occurred across ecological levels, profiles were also estimated that included child, parent, and family factors in a single model. To reduce the number of indicators, contextual factors that were unrelated to any enrichment variables were excluded from the analyses, resulting in profiles that were characterized by children's receptive vocabulary, expressive vocabulary, and behavior problems, parents' social support, age, immigrant status, and language status, and family's exposure to violence, marital status, residential instability, and food insecurity. Household income and parental education were also included as indicators to examine how SES related to differences in context. A five-group solution was chosen as the best fitting model, as the Lo-Mendell-Rubin adjusted LRT suggested that a 6^{th} group was not necessary (value = 285.39, p = .33). Much like in the parent-level LPA, one group in these analyses was defined by very high likelihood of being an immigrant and of speaking another language other than English at home and low child vocabulary scores, which was labeled the *immigrant* subgroup and comprised 25% of the sample. The remaining profiles were characterized by varying levels of exposure to violence but similar values on all other variables and thus were labeled according to their level of exposure to violence. Specifically, these groups included a *low exposure to violence* subgroup (55%), a *slight exposure to violence* subgroup (11%), a *moderate exposure to violence* subgroup (6%), and a *high exposure to violence* subgroup (4%). Profile characteristics are shown in Figure 6.

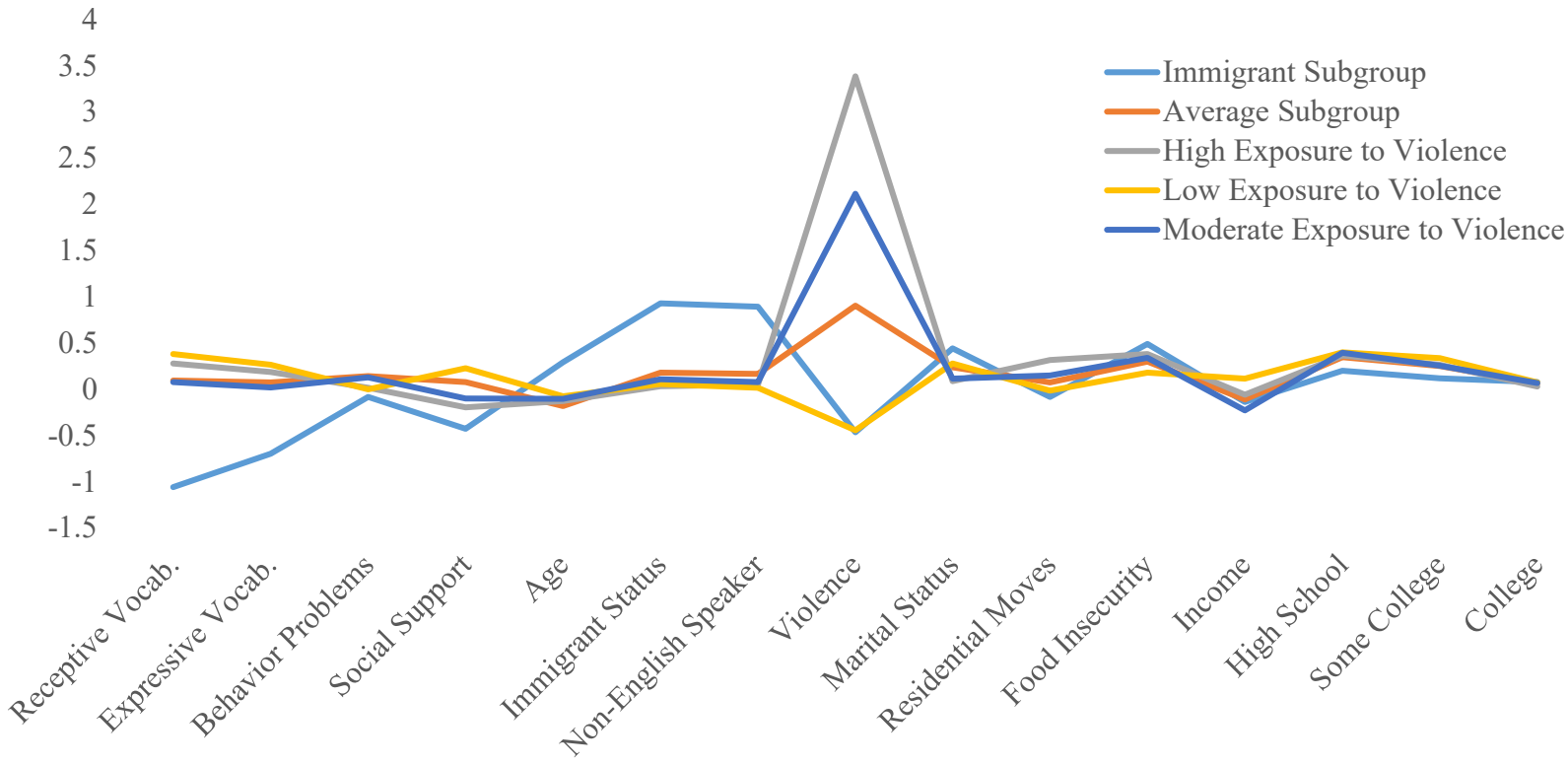

Figure 6. Latent profiles of families calculated based on child, parent, and family contextual predictors.

Table 10. Enrichment and achievement means across profiles estimated from contextual predictors across ecological levels

	Immigrant Subgroup	Exposure to Violence Subgroups			
		Low	Slight	Moderate	High
	25%	55%	11%	6%	4%
HLE					
Literacy	-1.23***	-	-0.43**	-0.39*	0.19
Math	-0.52****	-	-0.04	-0.09	0.16
General	-0.53***	-	-0.04	-0.14	0.16†
Outside	0.08	-	0.07	-0.13	0.03
Child Achievement					
Math - AP	-0.45***	-	-0.20*	-0.22*	-0.10
Math - ECLS	-0.27**	-	-0.14†	-0.33**	-0.05
Math - Counting	-0.06	-	-0.04	-0.06	0.14
Vocabulary	-1.39***	-	-0.37**	-0.38**	0.01
Literacy	-0.26**	-	-0.26**	-0.18	0.14
Contextual Predictors					
Receptive Vocabulary	-1.06	0.38	0.09	0.08	0.28
Expressive Vocabulary	-0.70	0.27	0.07	0.02	0.19
Behavior Problems	-0.09	0.00	0.14	0.13	0.02
Social Support	-0.43	0.23	0.08	-0.10	-0.20
Age	0.29	-0.08	-0.18	-0.11	-0.13
% Immigrant Status	0.93	0.06	0.18	0.11	0.03
% Non-English Speaker	0.89	0.02	0.17	0.08	0.05
Neighborhood Violence	-0.46	-0.44	0.90	2.11	3.39
% Married	0.44	0.28	0.24	0.11	0.09

Table 10. Enrichment and achievement means across profiles estimated from contextual predictors across ecological levels (continued)

Residential Mobility	-0.08	-0.02	0.08	0.15	0.32
% Food Insecure	0.64	0.84	0.76	0.80	0.85
Income	-0.14	0.11	-0.11	-0.23	-0.06
Parental Education					
% High School	0.20	0.40	0.35	0.40	0.37
% Some College	0.12	0.34	0.25	0.26	0.26
% College	0.08	0.08	0.06	0.07	0.03

Note. **Values in the top half of the table reflect the difference from the reference category (i.e., the *low exposure to violence* subgroup) in standard deviation units, whereas values under Contextual Predictors reflect the average values on each variable in z-scores (or percentages, where indicated).**

$^{\dagger}p < .10$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

As shown in Table 10, families who were classified in the *immigrant* subgroup engaged in significantly fewer reading activities and, to a lesser extent, fewer math and general learning activities than did families in the *low exposure to violence* subgroup. These children also had significantly lower math scores on both the Applied Problems subtest of the Woodcock Johnson and the ECLS measure as well as significantly lower vocabulary and literacy scores than their peers. Compared to the families in the *low exposure to violence* subgroup, parents in families classified into the *slight exposure to violence* subgroup and the *moderate exposure to violence* subgroup reported significantly fewer reading activities as well as lower vocabulary scores, lower scores on the Applied Problems subtest of the Woodcock Johnson, lower scores on the ECLS math measure (for families in the *moderate exposure to violence* subgroup), and lower literacy scores (for families in the *slight exposure to violence* subgroup). No differences in home learning

variables or child achievement outcomes were seen between families in the *low exposure to violence* and *high exposure to violence* subgroups.

2.3 DISCUSSION

In this study, I examined predictors of heterogeneity in the home enrichment practices of low-SES families using both variable-centered and person-centered analyses. I found that among a sample of families with children in Head Start, income and educational attainment remained significant predictors of various math and reading skills, and these associations were mediated primarily through parental reading practices in the home. In addition to SES, characteristics of children, parents, and families explained small but significant portions of additional variance in these aspects of the home learning environment, although many factors identified as protective or promotive factors in past research did not emerge as significant predictors of the HLE in these analyses. These null findings could be indicative of psychometric issues related to measurement or restriction of range related to this exclusively low-income sample or true null relations between these factors and parental enrichment. Furthermore, none of the theoretical mediators through which SES related to the HLE, including depression, related to enrichment domains, which may suggest that these extant theories require refining. Thus, disruptions in these mechanisms may not explain differences in parents' activities among disadvantaged families where there is less variability in the extent to which parents experience adversity. Additionally, in contrast to past work examining the accumulation of risk factors, the unique combination or accumulation of these factors rarely contributed additional information to our understanding of individual variability in the home learning practices of low-income parents.

2.3.1 Child Predictors of the Home Learning Environment

In this study, I hypothesized that children's skills would influence parental enrichment practices, given that these activities that parents engage in are dyadic, bidirectional interactions in which children are integrally involved (i.e., Bornstein, 2009). In line with this hypothesis, children's early language skills positively predicted home literacy activities and out of home learning activities. This is consistent with past work demonstrating that children's vocabulary growth predicts increased responsivity in parents (Bornstein, Tamis-LeMonda, & Haynes, 1999; see also Barnett, Gustafsson, Deng, Mills-Koonce, & Cox, 2012). The mechanisms underlying the association between child vocabulary and enrichment activities remain unknown, but past work examining child effects on parenting more generally suggests that child characteristics can shape parents' perceptions of their children, which in turn relate to parents' behaviors (Karraker & Coleman, 2005). For example, parents may engage in reading activities more frequently if they perceive their children to be more interested or engaged in reading activities. Children with stronger verbal skills may also actively evoke different enrichment activities more than their peers, such as through positively reinforcing behaviors (e.g., smiling and laughing while reading together) or explicit elicitation (e.g., asking to read with the parent). Finally, these activities may simply be more enjoyable and rewarding for parents of children with more advanced vocabularies if children can ask to read certain books or discuss the story in more detail. Although more research is needed to identify the specific mechanisms at play in these associations, particularly for enrichment activities occurring outside of the home, these findings demonstrate that links between children's language skills and parental enrichment to support those skills are likely bidirectional in nature.

Although behavior problems tended to be negatively associated with parents' enrichment practices, none of these associations reached statistical significance in the present study. Although many studies find links between children's externalizing problems or behavioral skills and parenting, much of this work examines more qualitative aspects of parenting, such as parental warmth, sensitivity, or aggression (Barnett et al., 2012; O'Connor et al., 1998; Patterson & Fisher, 2002; Pianta et al., 1989). As such, it is possible that parents' perceptions of their children's behavioral problems may relate to the quality or extent of these enrichment activities, which would not be captured in the dichotomous measures of enrichment activities utilized for the math, general, and out of home enrichment variables utilized here. Alternatively, given that children in the profile characterized by low social skills and high behavior problems were exposed to lower levels of reading stimulation than would be expected based on their social skills and behavior problems scores alone, behavior problems may be particularly salient for parents only when paired with low levels of social skills as well. However, it is also important to note that profile membership explained less than 1% of the variance in reading activities, suggesting this pairing of low social skills and high behavior problems may not reflect a psychologically meaningful effect.

In general, this evidence suggests that characteristics of children play a significant, albeit small, role in parents' enrichment practices among low-SES families. In this study, we examined how general skills might relate to the frequency of enrichment activities, but it is also possible that broader characteristics of children, such as their health, interest in specific types of activities, or temperament may also shape parent child interactions. Furthermore, it is possible that child characteristics, including both those measured here as well as those that were not addressed in these data, may also relate to the nature of these interactions. Additionally, it remains unknown whether these associations are unique to low-SES dyads or whether comparable findings would be

seen in a more advantaged sample. Child factors may be more predictive of parental activities among low-SES families if there are differences in parents' norms and expectations for involvement (see Elliott & Bachman, 2018a) or in children's regulatory skills (see Bradley & Corwyn, 2002; McLoyd, 1998) among families with varying levels of SES. Specifically, if parents with higher levels of education or income perceive academic activities as more normative or children display fewer problem behaviors among high-SES families compared to low-SES families, children's skills may matter less in parental initiation of these types of behaviors. Although these processes lie outside the scope of the present study, these findings nonetheless suggest that home enrichment practices should be conceptualized as dyadic interactions between parents and children rather than simply parental behaviors.

2.3.2 Parent Predictors of the Home Learning Environment

In addition to child characteristics, I hypothesized that characteristics of parents would also predict additional variability in the HLE over and above parental SES. Although many individual predictors at the parent-level were marginally related to enrichment practices, these variables explained minimal additional variability in practices. However, consistent with past research (Culp et al., 1996; Rafferty et al., 2011), older parents did in fact engage in higher levels of domain general activities both inside and outside of the home. Thus, age may be a protective or promotive factor for parents in the context of socioeconomic disadvantage.

In person-centered analyses, few demographic factors were related to parental enrichment across domains. Some evidence suggested that parents who were born outside of the U.S. or had limited levels of English proficiency may engage in lower levels of home enrichment activities, including both math activities and general home learning activities. Similarly, profiles of parents

were primarily differentiated based on immigrant status, and profiles in which most parents were born in the U.S. tended to display more enrichment activities than did profiles in which most parents had immigrated to the U.S. Although these associations did not reach statistical significance after adjusting for covariates in either the variable-centered or person-centered models, these group differences are consistent with past research (Brooks-Gunn & Markman, 2005; Crosnoe, 2006). On the one hand, these associations could reflect the unique challenges faced by immigrant parents navigating a new culture, such as limited access to written materials or variability in parents' knowledge of teachers' expectations (Crosnoe, 2006). However, these observed differences may also be attributed to the cultural specificity of the items measuring enrichment activities themselves, as there may be other activities that these parents engage in that help promote children's achievement that were not addressed in this survey. As such, more work developing and utilizing culturally sensitive or open-ended measures of enrichment activities is necessary to understand the nature of these observed differences.

In contrast to hypotheses, psychological characteristics of parents were largely unrelated to parental reports of their enrichment practices. As such, the original hypothesis that disruptions in these processes that typically explain how SES relates to parenting would predict substantial additional variability in the practices of low-SES families was not supported.

These findings could indicate that there is specificity in the ways that psychological factors relate to parenting. Theories such as the family stress model would suggest that the experience of poverty would take a psychological toll on parents (Conger & Dogan, 2007; Conger & Donnellan, 2007), some work with both low-SES as well as mixed-SES samples does suggest that income relates to parental investments in children directly, whereas other characteristics of parents, such as stress, marital conflict, and depression, operate indirectly (Berger, Paxson, & Waldfogel, 2009;

Gershoff et al., 2007; Linver et al., 2002; Mistry, Lowe, et al., 2008; Mistry, Vandewater, Huston, & McLoyd, 2002; Parke et al., 2004; Yeung et al., 2002). In other words, these theories may be less relevant for understanding variability in parental enrichment if these key psychological mediators predict other dimensions of parenting, such as warmth and sensitivity. This is not to say that income-related experiences of psychological distress would not interfere with parenting in other ways; in fact, some evidence suggests that associations between depression and positive parenting are strongest among low-SES mothers (Lovejoy et al., 2000). However, the evidence linking other psychological factors such as social support to parenting has yielded inconsistent findings (see Taraban & Shaw, 2018), suggesting that these null associations documented in the present study may reflect a true lack of a relation between parents' experiences of social support and their enrichment practices at home. As such, a more critical examination of these theoretically suggested pathways is warranted.

Alternatively, these null patterns of findings could be attributable to psychometric properties of the measures utilized in this study, such that associations between psychological factors and parental enrichment exist but were not observable in these analyses. In line with this possibility, parental reports of depression and social support were both highly skewed, such that maladaptive responses were reported very infrequently. However, both measures had considerable variability across the sample despite these non-normal distributions. The null findings may also be partially attributable to methodological issues with the HLE measures utilized in this study. As is discussed in more detail below, these enrichment measures had many notable limitations, including but not limited to the exclusive focus on whether activities occurred rather than the extent or quality of these interactions. Related to the concern described above regarding psychological factors predicting different, unmeasured dimensions of parenting, these psychological

characteristics may also relate to unmeasured dimensions of the HLE, such as the manner in which parents interact with their children during these activities.

2.3.3 Family Predictors of the Home Learning Environment

In addition to the characteristics of the individuals interacting in these enrichment activities, I hypothesized that the broader family context, including the structure of the family as well as resources, would relate to additional variability in home enrichment. In general, these analyses were consistent with extant theoretical and empirical literature, with some notable exceptions. For example, families with two parents in the household engaged in significantly more reading activities, suggesting that parents may have been more able to share responsibilities (Lleras, 2008; McLanahan, 1985; McLanahan & Percheski, 2008). Additionally, residential instability was related to fewer out of home activities, suggesting that residential moves may also disrupt families' routines in the community.

In contrast to these findings, the patterns of associations between home enrichment and risk factors such as neighborhood violence were counter-intuitive, as families with higher exposure to violence appeared to engage in more enrichment activities. Although unexpected, these risk indicators may in fact reflect other aspects of context. For example, families living in urban settings are more likely to experience violence in their communities (UNICEF, 2012), and so it is possible that the measure of violence utilized in the present study serves as a proxy for neighborhood urbanicity. Past research suggests that the experiences of children growing up in urban, suburban, and rural neighborhoods varies widely, as there are marked differences in the resources available to families as well as the challenges facing families in these contexts (Miller & Votruba-Drzal, 2013). In the context of parenting, several studies have also documented differences in urban and

rural parents' expectations for children's skills, involvement with their children's schools, and enrichment activities at home during early childhood that typically favor urban parents (McCracken & Barcinas, 1991; Miller & Votruba-Drzal, 2013; Roscigno, Tomaskovic-Devey, & Crowley, 2006; but see Coleman, Ganong, Clark, & Madsen, 1989). Children in urban settings also tend to have higher levels of achievement in early childhood than their rural peers (Lee & Burkham, 2002), although some work suggests that these benefits are only seen in small urban centers rather than large inner-cities (Miller & Votruba-Drzal, 2013). Thus it is possible that exposure to violence serves as a marker of urbanicity in these analyses, such that controlling for locality would negate or perhaps reverse these surprising positive associations between neighborhood violence and parental enrichment seen in the person-centered analyses. However, no data regarding family location are available in this dataset, and so it is impossible to test this hypothesis directly.

2.3.4 Links between Home Enrichment and Children's Skills

One unexpected finding in these analyses was the relative importance of reading activities as predictors of achievement outcomes compared to measures of math or general home learning activities or activities that occurred outside of the home. Decades of research underscore the importance of reading with children in the home during early childhood (e.g., Bus et al., 1995; Evans & Shaw, 2008; Liebeskind et al., 2014; Payne et al., 1994; Sénéchal & Lefevre, 2014; Whitehurst & Lonigan, 1998), and so these robust associations between parent reported time spent reading and the number of books in the home were expected. Similarly, cross-domain associations between parental support for academic skills and children's skill development are often seen in the

literature, particularly from literacy activities to math skills (Anders et al., 2012; LeFevre, Polyzoi, Skwarchuk, Fast, & Sowinski, 2010; Manolitsis, Georgiou, & Tziraki, 2013).

However, the lack of an association between math enrichment activities and any of the measures of math skills was somewhat surprising. Math activities in the home did correlate with children's counting skills, but this association was reduced to non-significance once additional measures of the home learning environment were included in these models. Past work suggests that experiences in the home that involve math content, such as counting and playing board games, the two activities included here, are positively correlated with children's skills (see Elliott & Bachman, 2018b, for review), and in fact several experimental manipulations suggest that board games in particular may increase children's number knowledge (Ramani & Siegler, 2008; Siegler & Ramani, 2008).

There are several reasons why these associations may not have been seen in the present study. As noted above, only two of the four indicators of the home environment were positively correlated with children's math skills, as the other two activities, singing counting songs and building with blocks, were negatively related to math achievement and thus may have been compensatory activities for children at this developmental stage. Thus, this measure of math stimulation included only two dichotomous indicators and may not have been particularly sensitive to variability in families' activities. Relatedly, there may be other activities that occur in the home that might be more beneficial for math learning. For example, some evidence suggests that more formal math activities are more strongly predictive of children's skills, and so measures that include activities explicitly intended to teach math may be more strongly related to children's math achievement (Huntsinger, Jose, & Luo, 2016; LeFevre, Polyzoi, et al., 2010; Manolitsis et al., 2013; Skwarchuk, Sowinski, & LeFevre, 2014). Additionally, the measure of math achievement

utilized in the present study exclusively captured the number of math activities that parents and children had engaged in rather than the frequency or quality of any of these interactions. In contrast to these methodological limitations, it is possible that these math activities in the home truly are unrelated to children's math learning. Although most existing research suggests that math activities in the home do predict later math skills, others find no such link (e.g., Missall et al., 2014) or find that these associations are fully explained by demographic covariates (DeFlorio & Beliakoff, 2015). Thus it is possible that other types of experiences not measured here, such as parent-child conversations about math concepts (Levine, Suriyakham, Rowe, Huttenlocher, & Gunderson, 2010; Ramani, Rowe, Eason, & Leech, 2015; Susperreguy & Davis-Kean, 2016) are more predictive of children's math learning.

Finally, in this study we did not observe strong associations between domain-general activities inside and outside of the home and children's academic skills, as only outside enrichment activities were significantly related to children's counting skills and general home activities were significantly related to literacy skills. Although these types of experiences are clearly important for children's cognitive development more generally (Hirsh-Pasek, Michnick Golinkoff, Berk, & Singer, 2009; Weisberg, Hirsh-Pasek, Golinkoff, Kittredge, & Klahr, 2016), it is possible that these activities may not directly or immediately relate to improvements in children's academic achievement (see also Elliott & Bachman, 2018a).

2.3.5 Remaining Questions, Limitations, and Implications

In general, these results suggest that characteristics of children, parents, and families play a role in explaining why some low-SES parents engage in higher levels of enrichment than others. This work suggests that several protective or promotive factors can foster more positive behaviors

that support children's academic development, including the presence of a second parent in the home or more advanced language skills for young children. It is notable that these factors appeared to reflect unique processes rather than the accumulation of risks or assets, as person-centered analyses explained minimal additional variability in parental reports of enrichment activities.

Despite the wide breadth of predictors included in these models, these contextual factors contributed at most an additional 5% of the variance in parenting over and above income, parental education, and control variables, suggesting that considerable variability in enrichment practices still remains. It is likely that other factors that could not be addressed in these data may explain this additional variability. For example, psychological characteristics of parents, including their beliefs about education and their values around children's development were not addressed in these surveys and yet may relate to parenting practices. In fact, several studies suggest that parents who rate early school readiness skills such as early reading skills or counting as more important engage in activities to support these skills more frequently (Puccioni, 2015; Sy & Schulenberg, 2005). Furthermore, these beliefs appear to be independent of SES, and socioeconomically disadvantaged parents may benefit more than their peers from these strong beliefs (Elliott & Bachman, 2018a). Beliefs thus may be one factor that relates to this heterogeneity in parenting among low-SES parents, but more exploratory or qualitative work is needed to identify other factors at play for these families.

Several limitations of this study warrant discussion. First, all data are correlational, limiting possible causal interpretations of any associations. Although the extensive set of covariates and use of lagged dependent variables helps to account for some of the endogeneity in context (Duncan, Magnuson, & Ludwig, 2004), unobserved confounding variables are not accounted for in these approaches and thus cannot be ruled out entirely. Additionally, measures of contextual factors and

the HLE are based on parent reports; thus, this project is vulnerable to self-report and mono-method biases (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Reliance on secondary data capturing only the presence or absence of activities in the home also precludes any more fine-grained analyses of the types of activities and interactions that parents and children engage in, such as whether formal and informal practices that may differentially relate to children's achievement (see Sénéchal & LeFevre, 2002; Skwarchuk et al., 2014). Although this sample is representative of all children in their first year of Head Start in the U.S., it remains to be seen how these findings might extend to low-SES families who are not receiving support from this intervention and whose children are not enrolled in preschool. Related to these generalizability concerns, most parents in this sample were mothers, and so more work is needed to examine the factors that related to paternal enrichment activities at home. Despite these limitations, this study demonstrates that contextual and child factors explain why some low-SES parents engage in high levels of academic stimulation at home and thus inform our understanding of the heterogeneity of socioeconomically disadvantaged families.

3.0 STUDY 2

In general, the quantitative analyses addressing heterogeneity of the HLE among low-SES families in Study 1 revealed that there was considerable variability in the extent to which parents engaged in these activities with their children at home, but the contextual factors measured in this study explained little of this individual variability. Given the many null findings reported above, it is possible that other factors that were not measured in this secondary dataset help to explain why some low-SES parents engage in high levels of the HLE. Extant theory does not directly address variability in parenting among disadvantaged families, and so more work developing theory based directly on parents' experiences may help to identify the constructs that relate to enrichment. Qualitative analyses are particularly useful in this regard to identify and examine the factors that are most important to participants themselves rather than those that are selected by the researchers. An additional explanation for these many null findings is that the measures of the home learning environment used in Study 1 fail to adequately capture opportunities for learning that occur in the home, as described above. If the measure used in these quantitative analyses is methodologically problematic, qualitative research can help to obtain a more complete picture of how parents support their children's learning at home by allowing parents to describe these activities rather than asking parents to report the frequency of activities selected a priori by researchers.

In sum, two central questions remained given the findings of Study 1: are there factors that relate to parental enrichment activities that are salient to parents other than those included in Study 1, and are there ways that parents support their children's learning at home other than those measured in traditional HLE questionnaires? These questions were exploratory in nature, and

analyses were driven by parental experiences rather than researcher hypotheses. To answer these questions, qualitative interviews were conducted with a small sample of parents of preschool-aged children with low household incomes or no post-secondary education in order to better understand the mechanisms underlying these processes (RQ 3).

3.1 METHODS

3.1.1 Participants

Thirteen parents of three- to five-year-old children participated in this study. Specifically, one child was three years old, six were four years old, and six were five years old. Only 2 of the 13 children had begun kindergarten prior to data collection. The majority of children in the sample (n = 11) regularly attended preschool for at least five hours per week at or before the time of the interviews. The sample of parents was entirely female and included parents who were currently married (n = 7), single (n = 4), living with a partner (n = 1), or divorced (n = 1). Parents were primarily White (n = 8), with other parents reporting their race/ethnicity as Black (n = 3) or multi-racial (n = 1), or preferred not to provide their response (n = 1). Four parents were working 30 hours per week or more, whereas five were working less than 30 hours per week and four were not working outside of the home. Although quantitative data on children's preschool enrollment were not collected on background surveys, most parents (n = 11) described that their child had attended at least some preschool, either currently or previously. However, time spent in preschool or preschool type and quality data were not available in these analyses. Demographics for each participant are provided in Table 11.

Table 11. Participant demographics for Study 2

Parent Name	Educational Attainment	Income Level Category	Race/ Ethnicity	HLE: Reading	HLE: Math
Emily	Bachelor's degree	Low Income	White	4.67	3.29
Kourtney	Some college	Low Income	Other	5.00	3.00
Amanda	Some graduate work	Low Income	White	4.67	3.14
Rebecca	Professional Degree	Low Income	White	4.00	2.57
Patricia	Associate's Degree	Low Income	White	4.33	3.29
Amber	Some college	In Poverty	Black	3.67	3.21
Chelsea	High School	Not Low Income	White	5.00	4.00
Susan	Master's Degree	Low Income	White	4.33	3.00
Amy	Some college	Low Income	White	4.67	3.21
Abby	Some college	Low Income	Multiracial	4.33	3.21
Vivica	Bachelor's degree	Low Income	Black	4.00	2.93
Ayesha	High School	In Poverty	Black	3.00	3.50
Ellen	Master's Degree	Low Income	White	4.33	2.64

Parents were eligible to participate if their total reported household income fell below 200% of the poverty guideline given their family size (U.S. Department of Health and Human Services, 2018) or if neither parent held a degree past a high school diploma or equivalent. However, 12 of the 13 parents in this sample were low-income whereas only 2 of 13 parents met education eligibility criteria, and so this sample is primarily low-income. In this sample of parents, two mothers reported their highest level of educational attainment as high school (15%), whereas four mothers had completed some college coursework (31%), one had completed an Associate's degree (8%), two had completed a Bachelor's degree (15%), one had completed some graduate coursework (8%), and three had completed a Masters or other graduate degree (23%). Most participating families were classified as low income (i.e., between 100% and 200% of the poverty line; $n = 9$), whereas two families were classified as in poverty (i.e., below 100% of the poverty line) and one family was classified as not low income (i.e., above 200% of the poverty line; this family was included based on education eligibility).

Although both this sample and the parents included in Study 1 (by nature of Head Start's eligibility criteria) were primarily low-income, parents in this study in general were much more socioeconomically advantaged than those in FACES 2009. The average annual household income of parents in Study 1 was around $22,000 per year (see Table 1), whereas average income was over $40,000 for parents in this sample. Even more extreme, whereas only 7% of parents reported having completed at least a Bachelor's degree in Study 1, almost half (46%) of parents who were interviewed had a Bachelor's degree or higher. These parents also described that their children were enrolled in a variety of early care arrangements and likely experienced a wider range of preschool experiences (e.g., type, quality, hours per week) compared to parents in Study 1 whose children were all enrolled in Head Start. More generally, however, this sample reported much higher levels of education than typical for low-income families. For example, in the Early Childhood Longitudinal Study Kindergarten Class of 2010-2011 (ECLS-K:2011), a nationally representative sample of kindergarteners in 2010, only 22% of households earning between 100% and 200% of the poverty line included a parent who had earned a Bachelor's degree (author calculation).

3.1.2 Procedures

Participation in this study involved one semi-structured interview and one brief demographic survey. Parents were recruited from past quantitative studies addressing parental support for children's early academic development. Parents were contacted over the phone or email to share information about the study and were asked if they were interested in participating. Many parents in this study (n = 8) were recruited from an on-going research project investigating SES differences in parents' practices to support math in the home; parental SES and HLE data

were available from this existing study, and so these families were selectively sampled to participate to obtain a sample of low-SES parents with a wide range of reported enrichment activities at home. The remaining five parents were sampled from an existing research database. All participants were screened to ensure that they were eligible to participate based on income-to-needs ratio or educational attainment, as described above.

Interviews addressed parents' enrichment activities with their young children at home, including probes about parents' beliefs about their children's education, challenges or barriers that interfere with these activities, and any differences in their attitudes about math and reading skills. The full interview protocol is shown in Appendix B. After, parents completed a brief demographic survey, through which they reported their age, race/ethnicity, gender, educational attainment, employment, income, and family structure. Parents also completed the Home Activities Questionnaire (LeFevre et al., 2009) as a measure of math and reading HLE. The full demographic survey is shown in Appendix C.

Interviews were conducted in participants' homes (n = 6), a quiet office on campus (n = 5), or a public space such as a coffee shop (n = 2). Interviews lasted between 23 and 75 minutes (M = 53.38 minutes) and were digitally recorded for later transcription and analysis. Before beginning the interview, parents were read a brief description of the study, were given the opportunity to ask any remaining questions about the study, and provided verbal consent to participate in the study and be audio recorded.

3.1.3 Analytic Plan

Interview transcripts were analyzed through an iterative coding process using Dedoose (Dedoose, 2016). A small set of descriptive codes was generated prior to analyses based on key

concepts addressed in the interview, including parental education, income, employment, statements of parental beliefs, and descriptions of home learning activities (Miles, Huberman, & Saldaña, 2013). This set of codes was then expanded based on review of all transcripts. Specifically, process codes (e.g., *parent interacting with school*), structural codes (i.e., responses to specific questions in the interview), emotion codes (e.g., *worry*, *excitement*), values codes (e.g., *Value – Family is important*; *Belief – Expectations for kindergarten are too high*), and additional descriptive codes (e.g., *use of technology*, *routines*, *areas of child skill improvement*; Saldaña, 2015) were added to the codebook. This expanded version of the codebook grew throughout coding as new codes were created until all transcripts had been coded.

Prior to the second cycle of coding, the full list of codes generated during first cycle coding was compiled and reorganized. Specifically, each code was reviewed for clarity and given a detailed description and example. The full list of excerpts that had been coded in the data were also reviewed to ensure that the code was being applied consistently and to identify codes that needed to be disaggregated. For example, the *parent interacting with school* code included a wide range of distinct processes and so was divided into multiple different codes, including *soliciting information on kindergarten readiness*, *working on homework*, and *reaching out to teacher*. Many codes were also refined in their scope, such as the initial *income* code that was relabeled *dealing with financial constraints*, as many parents talked about their finances indirectly rather than directly discussing income levels. Codes were also reorganized based on content rather than type of code (i.e., process, descriptive, structural, etc.) to facilitate coding. Content categories included School and Home, Math vs. Reading, Activities, Family and Resources, and Emotions. All interview transcripts were then recoded with this revised codebook (codes relevant to these analyses are shown in full in Appendix D).

After the second round of coding was complete, code applications were compiled into several matrices. First, code counts across interviews were compared to examine, for example, how frequent certain challenges or activities were across families. Attribute codes (see Table 11) were also applied to the interviews as descriptors in Dedoose, and code applications across descriptors were also examined (e.g., whether codes about the importance of education differed in frequency among parents with varying levels of education). In order to obtain a more nuanced view of parents' experiences, a more detailed matrix was also generated with each parents' demographic information included as well as key quotes and codes that had been applied across several content areas. These content areas included (1) their goals for their child in school, (2) how parents talked about their responsibility for their child's learning, (3) the style of parent-child activities in the home (e.g., whether the child or parent initiated), (4) discussion of challenges that arose in supporting children's learning, (5) their views of education, and (6) any financial constraints on their behaviors. Parents' responses within these categories were then compared among parents with similar levels of SES or HLE, based on the survey data (e.g., how parents with high levels of the HLE described experiencing challenges) and across parents with varying levels of these variables (e.g., how these descriptions differed from how parents with low levels of the HLE described challenges).

3.2 RESULTS

3.2.1 External Challenges Influenced Parents' Ability to Engage in the HLE

To answer RQ3 and examine the factors that parents considered to be highly influential on their home enrichment practices in the context of socioeconomic adversity, I first investigated how parents' described challenges in providing high levels of academic stimulation with their young children. Notably, all parents in this sample described experiencing some form of challenge or barrier to enrichment, regardless of reported levels of the HLE. Importantly, many of these factors were outside of parents' control, such that many parents who wanted to provide certain experiences and opportunities for learning to their children were unable to do so.

3.2.1.1 Characteristics of children often limited parents' activities

Twelve of the thirteen parents in this sample reported encountering difficulties engaging in learning activities with their children due to characteristics of the target child or other children in the home. The primary way in which children interfered with parents' ability to put these activities into action was through children's interest. Several parents explicitly noted that children had to be interested in activities in order for them to occur, such as "whatever they want to do kind of goes, 'cause if I try to go against that it's not gonna happen" (Amanda). For many parents, this meant that academic activities would have to wait until the child initiated them. Chelsea, for example, described the difference between activities that she initiated compared to those that her son initiated, explaining:

> Any time I suggest anything like learning, he's like, "Yeah, no. Can we just watch TV?" I'm like, "Okay," but when he does it…when he initiates it, he'll go on for like an hour. And I'm like, "Okay, fine. As long as you're going to do it, I'll do it." (Chelsea)

This child often initiated academic activities at home, such as asking the parent math questions or trying to write independently, and so this mom was not concerned about his learning at home. Instead, she was able to be more flexible when activities occurred and follow along when he initiated. However, other parents described that there were certain activities that their children were consistently uninterested in, such as reading. In these cases, child disinterest was much more limiting. For example, Amanda described her challenges reading with her son, saying:

> Jacob, he didn't want to sit. He was my first and I wanted to get him to love books and I got all these books and I would try to sit and read with him and he just did not like it. He didn't like it. He didn't like me trying to read to him. He would get annoyed and he would push the book away. (Amanda)

Eventually, this mom was able to find ways to make reading more enjoyable for her son, such as reading chapter books to him, but discovering how to implement this activity with her son was a slow and arduous process.

In addition to children's disinterest in certain activities, many parents described challenges related to other children in the home. On the one hand, for some parents, handling multiple children simply meant that there were more distractions from potential learning opportunities. One mom, Amy, described how her youngest daughter in preschool typically got home from school a few hours before her two older siblings, which was when the two of them could spend quality time together. As she explained:

> Because it's just the two of us that there's really not a struggle to [spend time reading together]. If I'm trying to do it with other people in the house that's usually a no-go. We can probably get five minutes through and then, "Mom, so and so is doing this to me." (Amy)

Similarly, when her other children were also home, she described difficulty making the time for learning activities, saying "then when you're also dealing with two other ones running around,

sometimes it's like, 'Get your socks on. We don't have time to count your toes. Let's just go.'" Thus, simply balancing time and resources between multiple children could pose a challenge.

Alternatively, other parents described specific challenges related to the target child's siblings, such as certain activities not being appropriate for other children. For example, Rebecca, who had a younger child in addition to her daughter in preschool, described how playing board games with three children was often difficult due to her youngest child. Specifically, she described typically playing board games only when two parents were home, because even though her older children enjoyed playing board games, "it's a little bit tricky because they have a little sister who lives for the moment that they pull out a board game so she can steal all the stuff and run away. She really, really loves to interfere." Other parents described similar challenges, such as younger children wanting to be involved when the target child was playing educational computer games. Thus, children's own interest in learning activities as well as characteristics of the broader family structure were salient factors in how parents provided enrichment opportunities for their young children.

3.2.1.2 Parental work outside the home constrained parents' practices

Another commonly described barrier to parental involvement in this sample was parental work schedules. This concern was expressed by nine parents in the sample, either in describing their own or their partner's work. These challenges were particularly salient for parents who were working non-traditional hours. One mother in this sample, Ayesha, had only one day off per week to spend with her children, and on work days had only two hours in the evening to spend with them. When asked about her activities with her children one her day off, she described engaging with her children in response to their interests, saying:

> Since I'm off once a week I'll spend it with them that one day, so it's like more so I really don't be doing the reading, I spend time with them and play with them and stuff, because they really say "Mom why do you always go to sleep" like I'm ignoring them, so…I try to play. (Ayesha)

Other parents expressed similar concerns, such as Chelsea, whose husbands hectic work schedule constrained many of their activities, explaining:

> With my husband's line of work, yes, because he's always at work, but his two days off are during the week. So when he's off, I try to make the most of that time. So any running I have to do, cleaning of the house, laundry, I try to do that when he's at work so that the days he's off, we're solely focused on just us. (Chelsea)

Chelsea also described prioritizing family activities for when her husband was available, stating that during those times when the whole family can spend time together, "it's always fun. It's never learning." Thus, for many parents, work schedules seemed to shift parents' priorities in terms of how to spend the rare time they had together.

How these priorities shifted in the context of time constraints was not consistent across families. For some parents, such as Patricia, who worked afternoons and thus during the week only spent time with her child before school in the mornings, this valuable time was spent discussing academic content. Specifically, she described asking her child to identify which sounds different letters made while waiting for the bus the previous day in order to keep her occupied while waiting. Many other parents described similar types of informal, day to day activities to work within the constraints of their schedules. Ten parents in this sample explicitly described intentionally looking for everyday opportunities for learning, often because of their limited schedules. One mom, Abby, tried to find times throughout the day to bring up academic content, saying "I know we don't have a half an hour or an hour of learning time everyday… that's why I'm like 'How many cents is this, put the money in the laundry mat.' I try to just sneak it in." Thus, when parents do not have the

time for extended learning-related interactions, many parents found ways to work this academic content into other types of activities.

Although this strategy of finding day-to-day opportunities for learning helped many parents overcome schedule constraints, this behavior was not only described by parents with limited time with their children. Other parents with more flexible schedules also used this technique for a variety of reasons. One parent with a background in early childhood education, for example, described how finding opportunities to learn with her daughter seemed like second-nature. Specifically, she explained:

> It's just finding those little things. Like, I have this cup, "What letters are on this cup? Do you know what this means?" Just going through those kinds of things and just finding everyday situations a way to kind of relate it into something, can you learn something from this? (Amy)

Similarly, Rebecca described how turning everyday activities into opportunities for learning was intuitive to her, describing this process as "just seeing that they are interested in this…it just seems very natural to be like 'oh, you're holding…in one hand you have four and in one hand you have five; how many do you have altogether?'" Thus, this opportunistic approach to learning activities and providing enrichment was common in this sample, often but not exclusively to mitigate limitations in how much times parents could spend with their children.

One common way in which parents put this approach into practice was through asking their child questions about academic content throughout the day, as demonstrated by Rebecca and Amy's statements above. Ten parents in this sample described this style of asking children questions informally (n = 10), often based on activities or conversations that children initiated. For example, Amber described talking about simple sums with her child while he was playing, saying "he'll sit up there with his like little figures now and he'll line them up and he'll count them and he'll take one away. I'll be like, 'Well, how many is left?'" Amy described similar types of math

questions, such as responding to her child's observations with questions, saying "in my car today we were getting out to go to preschool, and she's like, "You've got a lot of water bottles in your car." I'm like, "How many do I have?" "You have three." "How many are clear?" "Two." All right." Through asking questions like this, parents were able to incorporate enrichment into everyday activities, even when they had limited time for more formal activities.

Despite these ways that parents could work around the constraints of their work schedules, work also indirectly interfered with parenting, such as through parents' energy level. For instance, Amanda, who worked two jobs, described how her work impacted her parenting, saying:

> It usually takes me a couple of days to recover after working. So I work over the weekend and at work I'm on my feet and busy and running around. So then I get home and pretty tired. So they kind of lead whatever they want to do. (Amanda)

Six additional parents described their energy level interfering with engaging in enrichment activities at home, either as being tired due to work or other tasks around the house. As such, considering not only the direct effects of employment and the constraints on parents' time, which may be abated by integrating enrichment into everyday tasks, but also the indirect strain that work places on parents is important for understand how employment shapes parental enrichment activities at home.

3.2.1.3 Many parents experienced other, unique disruptions and transportation challenges

Finally, several parents described other challenges to providing cognitive stimulation that were somewhat unexpected based on past empirical work. These challenges were often unique to their particular family but nonetheless salient to parents. For instance, one parent in this sample was divorced and described how her children's father's visits would interfere with their schedule, partly due to differences in parenting style and priorities, but also because of the emotional toll this took on her children. She explained:

> He comes [to town] almost every month for two days and that's always really tumultuous. And then after he's gone for like three or four nights there's a lot of grieving is what I call it. I think it's just kind of grieving 'cause there's the high of he's here and excitement and joy and celebration. And then he goes away and then there's just a lot of misery. Everybody's grumpy and they don't really know why. (Ellen)

This mom also described that her children were typically very interested in learning activities, and so this disruption was particularly salient for her. Other unique challenges included sharing a vehicle, described by Susan, so most of her day was spent driving family members to work, school, or other obligations. Additionally, one mom, Emily, explained how she had maybe decisions regarding employment after having her first child, stating "I couldn't afford to work at that point because I had all my money would go to childcare." As she was trying to reenter the workforce, she reflected on her current situation, stating:

> I think that if I did pick up some work a couple of days a week I hate to say it but I think it would make me appreciate them more, you know, because then I'd miss them and when I get home I'd be so excited that I would want to sit down and be involved and do things with them. (Emily)

This parent was also in a fairly unique position as she was grappling with concerns and limitations of being a stay-at-home parent and was searching for ways to feel like she was contributing to the household. As such, for this mom, the abundant availability of time with her children was in some ways a challenge to spending quality time together. Although idiosyncratic, these experiences help to illustrate the range of experiences and challenges facing parents and the additional processes that interfere with parenting that may be overlooked in survey-based studies.

3.2.2 Low HLE Scores Did Not Always Reflect Low Levels of Engagement

As noted above, these various challenges were reported at similar levels for parents who reported high and low levels of home learning activities on the survey measure administered in

this study. Thus in addition to the challenges described above, several other explanations were apparent for why a parent may have reported low levels of enrichment activities. On the one hand, several families reported engaging in activities or interactions that were clearly educational but were not captured in this measure. Specifically, many parents engaged in certain activities with considerable depth but did not necessarily report a broad range of activities. One such parent, Vivian, described how her child's preschool teachers were concerned about her daughter's ability to write her name. This parent was particularly concerned with her child's readiness for kindergarten given her older child's struggles in school, and so she was extremely motivated and eager to follow the teachers' suggestions. Consistent with these concerns, she described working on name-writing with her child in a variety of different ways, such as writing letters while doing art projects that the child was interested in and working with the child to write and sign holiday cards. These activities were particularly frequent because of the preschool teacher's feedback. As she explained:

> That's all I know right now. I know that that was an issue for her, that was a struggle. And for her [teacher] to come to me and say this is what she's struggling with, then that's like okay, boom. I feel like, okay, I have something. I know where we need to go, what we need to work on. (Vivica)

Outside of name writing, this parent also described how she had incorporated opportunities for learning into her child's everyday activities rather than structuring activities explicitly around learning. As one example, she described how she had purchased an advent calendar for her child with numbered days and recognized the opportunity for learning, stating:

> The first day we opened it I didn't pay it no mind. And then it was like probably by the third day. And I was like, "Today's December 3rd, it's number three." And I saw her go for the numbers. And I was like, bing! You know? That's awesome, because we can use this to kind of go over the numbers every day and she would count how many days and different things like that. (Vivica)

As this example illustrates, talking about numbers was a regular routine throughout the day. Although this parent had scores below the average on the HLE measure for both reading and math activities, she clearly was very intentional about how to teach her child at home and engaged in several different types of interactions to foster her daughter's academic development.

Similarly, one parent, Ellen, had below average scores on the math HLE measure despite describing almost constant discussion of math concepts. When examining her survey responses more closely, she reported engaging in activities like counting or computing simple sums very frequently, yet rarely engaged in activities such as talking about money when shopping or about measurements while cooking. This pattern of survey responses was consistent with her interview responses, where she described constantly asking children questions about math. For example, she explained:

> I do a lot of counting just like with things. I'll measure the cup of dog food putting it in the big Tupperware. So I go "one, two, everybody count with me" and we'll count to 50. So there's a lot counting and there is a lot of math that happens. And I'll say "Oh look, there's like two pieces of broccoli on your plate, two pieces of broccoli, how many pieces of broccoli are here?" And then everybody will kind of look and I'll say [to my older daughter] "Rebecca, wait, wait, wait" and then one of the [younger] boys will pop out with a number. And it's very exciting to them to get it right and it's very exciting to me that they get it right. So I don't know, we just count a lot…Yeah, it's throughout it's not like "Okay, now we're going to do math" times so much. Occasionally we'll do something like that like in one of the [workbooks] but…[it's] less structured, it's just kind of pervasive. (Ellen)

Much like Vivian, this parent was very intentional about providing opportunities for her children to learn. Her focus on this narrow range of types of math activities was necessary given other constraints. Because more formal math activities could not occur, she described incorporating math into other activities, stating:

> Since it's so flexible and it's just kind of interspersed everything, it's [happening] the majority of the time. If it had to be more structured, it would be way less often because there are lots of practical things that I have to get done. And so, in order to make the household function there are a lot of things I have to do. So I'll count the number of times I have to go up to the third floor and down to the basement to do laundry. And somebody

> will come along with you and particularly Shepherd and we'll do it together. "What time is this?" "Oh, this is like the seventh time." "Wow." (Ellen)

Thus, as described above in reference to overcoming challenges related to parents' work schedules, one way that parents make time for learning is through interjecting everyday activities with academic conversations. However, it is notable that these types of activities were not always reflected in HLE scores, as these parents may not have been able to do more structured math activities such as playing board games or measuring ingredients while cooking with the child.

In addition to these parents with low HLE scores who seemed to engage in a more narrow range of activities than typically included on HLE measures, other parents with low levels on the HLE variables reported that their priorities for how they spent time with their children were not related to academics. As noted above, one mom who worked long hours, Ayesha, wanted to make sure her limited time when she was off work was spent enjoying her time with her children and following along with their interests rather than guiding the interaction. Another parent, Rebecca, described that she was more focused on her child's holistic development, including her socioemotional skills and motivation. This parent had an older child who had been very ahead when she started kindergarten several years earlier. As a result, this mom described some difficulty in gauging how hard to push her younger daughter who was currently in preschool, as she knew that she could be somewhat more relaxed than she had with her oldest child. She explained her decision making, stating that "there is a part of me that's like yeah, come on, kids. But there's another part of me that's like really when it comes down to it, what's more important in life." Specifically, she described a variety of other goals for her children that were important for her, and through her parenting, was very intentional in trying to focus on those non-academic goals. As she explained:

> I have friends who are very much already worried about their kids getting into colleges and stuff. And it's hard not to feel that and have that sort of pressure. And when I get a progress report from my daughter who is in school and be like "Oh nice, nice." Or like "Oh, you know, she didn't get an Exceeds Expectations, maybe we should work on that." But I feel like actually her being at that school has helped me sort of relax about – I do want her to succeed academically, but also sort of realize that there are other aspects of her development right now that are going to be more important on the whole for her whole life. I obviously, like I said, I read a lot and I think that's really important. My husband was a math teacher. I know that those skills are important for lifelong skills. But also I feel like as a kid, learning that other people are real and have feelings too and that their feelings are important, that's going to be more important in the long term. (Rebecca)

By using her older daughter's academic success in school as a gauge for what her preschooler needed to know, this parent described being able to decrease her emphasis on academics and focus on other important skills. Thus, she reported engaging in academic enrichment activities less frequently in both survey and interview responses as a result of an intentional reflection and decision. As such, there are a variety of methodological and psychological reasons for why a parent may report low HLE scores, and disentangling these multiple sources is critical for understanding the activities and interactions that are occurring in the home context.

3.2.3 Parental Reflections on Socioeconomic Disadvantage

In addition to these planned analyses, several surprising themes related to the key research questions of this study emerged, specifically around parents' experiences of financial strain or in their education.

3.2.3.1 Income and financial constraints

Of the 13 parents in this sample, 11 described financial concerns coming into play when deciding how to spend time with their children. Parents navigated these challenges in a variety of ways. Many parents, such as Abby and Patricia, reported intentionally seeking out free events or

using free community resources like the library. Others, including Ellen and Rebecca, reported that family members or friends helped out financially by paying for museum memberships, extracurricular classes, or other out of home learning opportunities that they may not have been able to afford on their own. Financial concerns also came into play for parents when making decisions about their children's formal education, as many parents described how they had made decisions about leaving work or reentering the work force, having their child in preschool for an additional year given the costs of child care, or trying to obtain financial aid for private schools. For example, when asked about changes that would make providing opportunities for learning easier, Susan quickly responded with:

> More money, I know that's a superficial answer but…we went from having two salaries to one because I you know quit my job… [we] gave up a lot of things so that we in exchange for time you know so I think you know for their really early years and I think Rosie got a couple of bonus years, you know we really did intentionally… So particularly in the earlier years we felt it was best that you know for me to invest more time rather than to make money but, now that they're older, it's like you know just having more disposable income, it lets you give them more experiences. (Susan)

For this mom and others in this sample, financial constraints were a salient factor in making decisions about their family in general and their children's learning in particular. However, it is worth noting that these constraints did not come into play in thinking about learning activities at home, as parents did not describe challenges in providing materials for learning in the home such as books or board games.

Despites these constraints, many parents reflected on the implications of their income in interesting ways. Abby, for example described how her limited income shaped her approach to parenting. Specifically, she described her motivation for parenting in the way that she did based on these constraints, saying:

> I might not be able to give her some things, I might not be able to afford some things, but this is something I can give her. All I have to do is spend the time and the effort. This is something I can give her and make her smart, if I just pay attention and do it. (Abby)

This parents' activities at home were thus intended to supplement or compensate for other limitations, which was very explicitly planned by the parent. However, she did not seem to perceive these limitations as impossible to overcome, stating:

> It's like people with money – people act like money's everything. There's some really horrible parents with money and there's some really wonderful parents that are dirt poor. Like I told you my dad took me out a lot – we didn't even realize. He was taking us to the woods on adventures, he was taking us on all these free places and it never hit us until we were like 16, 18 years old that all these adventures were free. He was taking us places that he could afford to take us. He couldn't take us to amusement parks, he couldn't take us to the movies. (Abby)

As evidenced by these excerpts, Abby had a very positive framing on these financial constraints and a concrete strategy for overcoming these limitations.

3.2.3.2 Educational attainment

In addition to these observations relating to parents' financial resources, many parents had meaningful reflections on their educational attainment, either in terms of how their education had been impactful or how the low levels of educational attainment had been limiting for themselves or for other family members. Five parents described directly learning material in their education or job training that informed their parenting, such as taking courses in early childhood education or counseling. In addition to these direct benefits, many parents in this sample expressed that education was important for their development. Amber, who was currently in school, often communicated about her continued education with her children, explaining:

> I talk to them, you know, like "Mommy has work to do to" and he'll even say, like in the morning, he'll be like, "Okay, Mom. I'm going to get on the school bus. Nate's going to go to kindergarten, and you're going to go to school." Everybody does their own thing throughout the day. We come home and like if he sees me doing homework he's like,

> "Mom, what are you doing?" I'll be like, "Mommy has homework too, you know? Just like you, so that we can have a better life." I don't think he understands it too much, but...I think it will be very meaningful to him. You know, he'll see like I cared to give him a better life and do better for them. (Amber)

For this mom, the decision to pursue her degree was important to ensure that her children had more opportunities in their lives. She explained that she had not been able to directly apply what she had learned in her formal education to her parenting; rather, her experiences as a parent were beneficial when interacting with children and families in her training. Thus, in addition to these direct benefits of education, other parents perceived more indirect benefits of obtaining higher levels of education.

Although these statements reflecting the importance of education were coded more frequently in parents with a college degree than those who had not attended or completed college (50% compared to 29%), parents with varying levels of educational attainment recognized their important and unique contributions to their children's education (n = 7). Chelsea, for example, explained how her child asked questions about the world around him, including questions about numbers, letters, and words, almost constantly. Although she explained that this continuous discussion was often tiring, she recognized the necessity of taking the time to answer his questions throughout the day, even if it required multitasking while doing other household tasks. Specifically, she stated:

> I'm sort of his outlet to the world and to learning. So if I'm not answering his question, then he's not learning. So if he's asking me something, and I'm ignoring it, or not answering it, then he's not getting the answer. So then he's at a pause, and I don't want to put that all on his teacher. I mean, that's your job as a parent. You're shaping them into who they're going to be, and I don't want him to be stupid kid in class. So I'll always answer his questions. (Chelsea)

In other words, even though her child was also in preschool and had access to a teacher, she believed she was primarily responsible for his learning.

Similarly, several parents described how their role as a parent filled a specific niche that the school environment could not reach. This belief was expressed about both children's kindergarten teachers as well as preschool teachers for parents whose children were enrolled in a preschool program. Specifically, although many parents described that they were able to rely on their child's preschool teacher for additional support, they as the parent still contributed to their children's learning. Susan, for example, described relief when her child started preschool, saying "Well, right now I feel like we have so much help with the teacher because… up to that point I felt like the onus of it is all on us." She explained how now, knowing that "I don't have to think about phonemic awareness anymore because [his teacher's] doing it" she could focus on other opportunities for learning that might be missing in the school environment, such as art and music projects. Ellen described a similar role for herself as a parent, explaining that fostering a love of learning was "more my job than kindergarten's job, really." This parent was particularly intentional in her goals and activities with her child and as such saw her role as very broad. As she explained:

> I think school's job is much smaller [than mine] in many ways. I mean it's clear and it's specific and I really value the role that his teachers – his teachers love on him, they teach him a lot of things. They help to guide his learning and they also help foster that love of learning and the sense of independence and confidence and structure. It's really, really good. But I think my job is also to, I mean to parallel that, to start that and kind of give the foundation on which they kind of build. Rather than just playing non-directively all the time and then letting [the teachers] kind of say "Okay, so now you have to stop playing and go and do hard word at school." I want it to kind of flow more. (Ellen)

In other words, this mom felt responsible for broader aspects of her children's development than the school typically addressed, as was evident in her discussion of her parenting. Thus, many parents in this sample described being responsible for children's learning, even when their children were enrolled in preschool. In particular for parents of children in preschool, many parents

recognized how they were not only important contributors to children's learning but served a different role from the preschool teachers.

3.3 DISCUSSION

In this study, I explored how low-SES parents of preschool-aged children described their experiences engaging in academic enrichment activities with their young children. In particular, parents described the types of activities that they typically engaged in with their young children, their process of deciding how to spend time with their children, and any challenges or barriers that interfered with their ability to engage in these types of activities. All parents described several types of learning activities that were occurring at home but also reported some challenges, most often related to their work schedules, other housework or tasks that had to be completed, or children themselves. However, several parents who received low scores on conventional HLE measures reported frequent instances of academic stimulation in the home, suggesting these measures may be poorly suited to capturing the types of activities that low-SES families engage in. Finally, parents also reflected on their socioeconomic resources in unexpected ways that often conflicted with existing theoretical and empirical evidence, suggesting some further nuances in how income and educational attainment relate to children's achievement. Below, I discuss each of these findings in greater detail.

3.3.1 Employment as a Barrier to Enrichment

Many of the challenges noted by parents in this study were consistent with past theoretical and empirical work. For example, many studies have indicated that increased hours of employment and time away from the home can have a negative impact on parenting by increasing time constraints and work-family conflict (e.g., Adkins & Premeaux, 2012; Byron, 2005; Lleras, 2008). Consistent with this research, many parents in this sample reported that their work schedule interfered with their ability to engage in learning activities. However, one parent described challenges stemming from her lack of unemployment, consistent with research suggesting that maternal employment is also likely to have several benefits (Cooklin et al., 2015). In particular, some work with socioeconomically disadvantaged mothers indicates that employment may be positively related to mother's psychological well-being (Jackson, Bentler, & Franke, 2008). As such, more research exploring the conflicting, complex ways in which employment outside of the home relates to parenting and to home enrichment in particular is necessary.

Despite these constraints, many parents in this study described intentional ways to compensated for having limited time to spend with children at home, such as by finding informal activities or opportunities for learning that could be incorporated into day to day activities. Although this strategy was effective for many parents, more work is needed to identify the knowledge, such as what material is developmentally appropriate at what ages, and parental characteristics, such as motivation or creativity, that allow for these types of informal, emergent conversations to occur. Furthermore, as is discussed in more detail in the limitations, little is known about how these types of interactions might shape children's skills.

3.3.2 Aspects of the Broader Family System as Barriers to Enrichment

Although research typically models home enrichment as a parental behavior, this study demonstrates that these activities are dyadic and should be treated as such in future work. Children's contributions to their own learning were seen most clearly through children's interest in activities, as many parents described that their children were simply not interested in certain types of activities, such as reading, despite parents' attempts to engage them. Past research has not addressed the extent to which children are interested in academic activities more generally, but a growing body of research has examined children's interest in and motivation for reading in particular. In general, children's interest in shared book reading may relate to high quality interaction and discussion during book reading on the part of the parent and also predicts children's language and literacy skills (e.g., Deckner, Adamson, & Bakeman, 2006). Understanding child interest in learning activities is particularly important given that children's engagement in the HLE is likely important for learning based on research addressing joint attention in learning (e.g., Carpenter, Nagell, Tomasello, Butterworth, & Moore, 1998; Morales et al., 2000; Tomasello & Farrar, 1986). If children are less engaged or interested in these activities, they may benefit less from these activities, and so future research should investigate the sources of this child disinterest.

Parents in this study also described characteristics of the broader family system in which these parent-child dyads were embedded that may shape home enrichment activities. For example, many parents in this sample described limitations relating to their partners' work schedules, such as challenges finding times in which both parents could spend quality time with their children together. Similarly, considering the ways that other children in the home contribute to these interactions is important for future work. Particularly for parents with younger children for whom learning activities may not have been developmentally appropriate, engaging in these types of

activities with their preschool-aged children was a challenge. Extant work examining family size suggests that, among single mothers, home enrichment tends to decrease as the number of children increases, although the strength of this association varies by parental age and education (Lleras, 2008). Although this research examining the number of children in the home is important, these findings highlight some potential nuances in these processes depending on birth order, gender, and age spacing (see Furman & Lanthier, 2002) for a more extensive review of sibling processes). However, much of the existing research on the HLE has examined the parent-child dyad in isolation from the rest of the family system, and so these processes may have been overlooked in past work.

3.3.3 Discrepancies in Reports of the HLE

Somewhat surprisingly, parents with low scores on the quantitative HLE measure did not systematically differ from parents with higher scores in terms of their experiences of challenges providing academic enrichment with their children. In fact, many of parents with low HLE scores reported numerous stimulating activities at home with their young children. These discrepancies across data sources suggest that the methods of measuring the HLE that are often used in the quantitative literature may not capture the types of activities occurring among low-SES families.

Many parents in this sample described very educational interactions that occurred in fairly idiosyncratic activities that may not be explicitly included in survey measures, such as counting while doing laundry or identifying letters and words while driving. Quite often, parents engaged in these types of interactions because they did not have the time to complete the type of planned, intentional activities that are often measured on these surveys, such as completing workbooks or playing board games. As such, it is possible that low-SES parents engaged in different types of

math activities, so that SES differences in math activities may be qualitative rather than quantitative in nature. Thus, by focusing on the frequency of academic activities rather than the content of interactions, including how parents provide their children with opportunities to learning throughout the day, we may be overlooking substantial opportunities for learning in the home. Particularly for low-SES parents who may have limited time or resources to provide formal learning activities such as playing with board games or using workbooks, this past survey-based focus on how often parents can engage in a specific activity with their children underestimates the enrichment occurring at home. Furthermore, this methodological focus on the frequency of math activities may exacerbate observed SES differences in the HLE if high-SES parents are engaging in activities more frequently and low-SES parents are engaging in these alternative, unstructured opportunities for learning. Past work has primarily addressed quantitative differences in parental enrichment, such that activities occur more frequently among some families, but more research is needed to explore the extent to which SES differences in the HLE are qualitative in nature, such that socioeconomically disadvantaged parents are engaging in different types of enrichment all together.

These interviews also suggest that more work utilizing measures of parent-child interactions and conversations are needed to capture the extent to which parents' provide opportunities for their children to learn throughout the day. In the extant work on parental math stimulation at home, some research has tackled this challenge by observing parents' discussion of number and math concepts, or math talk, in interactions with their children. Evidence suggests that parents' discussions of number concepts correlates with children's academic skills (Levine et al., 2010; Gunderson & Levine, 2011; Elliott, Braham & Libertus, 2017; Susperreguy & Davis-Kean, 2016) but not with more traditional, survey-based measures of the math activities occurring at

home (Yildiz et al., 2018). As such, it is likely that parents' participation in math activities and their more informal discussion of math content reflect unique processes. A similar approach to understanding home enrichment in a more domain-general sense might help to explain why these families with low quantitative HLE scores on the activity-based measure describe numerous enrichment educational interactions at home.

3.3.4 Income and Education

Given that almost all parents in this sample were classified as low-income, it is unsurprising that almost all parents described some level of financial strain. This experience of strain came into play when parents made small decisions about how to spend time with their children but also more consequential decisions such as whether to continue working or where and when to enroll their child in kindergarten. Parents' responses were in many ways consistent with existing theoretical frameworks such as parental investment, as financial resources constrained parents' abilities to invest resources or time in their children (Conger & Dogan, 2007; Conger & Donnellan, 2007; Duncan et al., 2014). However, this study also offered novel insights into how parents may overcome these challenges. In addition to the types of informal interactions detailed above, many parents described utilizing their broader social networks for support in purchasing materials such as museum memberships or learning materials for their children. Understanding how families have access to these larger support systems is critical, especially given that there are likely to be systematic differences in which parents can rely on other family members or friends for financial support. For example, sociological research clearly demonstrates that Black parents in the U.S. typically experience greater proximity to disadvantage compared to their White peers as a result of historical and systemic barriers to wealth accumulation (Gosa & Alexander, 2007; Hanks,

Solomon, & Weller, 2018; Shapiro, 2017). As such, understanding how all families can utilize social networks when the resources available in these networks is so variable, as well as how parents can overcome financial strain in the absence of these networks, is important for explaining the heterogeneity of low-SES parents' behaviors.

Even though almost all of the parents in this sample were low-income, there was considerable variability in the educational attainment reported by parents. Less theory exists to explain why parents with lower levels of educational attainment may, on average, engage in lower levels of academic stimulation at home compared to their more educated peers (i.e., how education "gets under the skin"). On the one hand, several parents in this study described ways in which their coursework or job training had directly informed their parenting, such as parents who learned about developmental milestone or appropriate teaching strategies in formal educational settings. Thus, education may relate to parental behaviors through increased content knowledge (see Rowe, 2018). However, other parents described more general benefits of obtaining higher levels of education such as increased opportunity for upward mobility, and so it is less clear how these more indirect changes may relate to parenting and child achievement.

Finally, several existing studies suggest that educational attainment may also relate to parents' beliefs about education, such that parents with higher levels of education may take more responsibility for their children's learning than their peers (DeFlorio & Beliakoff, 2015). Although this pattern of findings may be true on the whole, it is important to consider that these parents are nonetheless invested in facilitating children's learning (see Drummond & Stipek, 2004). The results of this study would suggest that many low-SES parents do in fact report high levels responsibility for their children's learning and recognize their unique role for children's learning. As such, more research exploring heterogeneity in parents' reports of their perceptions of

responsibility, both across individuals and across domains (e.g., responsibility for teaching academic content or general learning), is necessary.

3.3.5 Limitations and Conclusions

Several limitations of this study warrant discussion. Families enrolled in this study had relatively high levels of income and education, as most parents in this sample had completed at least some college credits and only two families had incomes below 100% of the poverty line. Similarly, parents in this sample had fairly high levels of educational attainment given their low incomes, as only two parents in their sample had no post-secondary education. More research is needed to understand the factors that support parental enrichment among the most vulnerable and disadvantaged populations, including parents with very low levels of income or educational attainment, as experiences of financial strain, for example, are likely experienced very differently for these families. Likewise, most of the parents in this sample were White, and so understanding these processes among families with a wider range of racial/ethnic and cultural background is critical to understanding heterogeneity in parental experiences. Also related to generalizability, it remains unknown whether these types of activities and challenges are unique to low-SES families or whether parents with greater socioeconomic resources are in some way buffered from these barriers. Although not a main goal of this study, future research should explore whether differences in the experiences of these challenges can explain SES differences in home enrichment or child achievement. Similarly, as described above, low-SES parents may engage in different types of learning activities in order to work within their constraints, but these time constraints may not be exclusive to low-SES families. If high-SES parents experience similar constraints, it stands to reason that these more advantaged parents may also engage in conversations about academic

content that are integrated into other activities. In other words, it is possible that these processes may look similar across SES, but more research is needed to explicitly test this claim.

This study also did not explore how these parental processes may be related to children's academic skills, and so more work is needed to establish, for example, whether these informal learning opportunities that are incorporated into everyday conversations predict children's learning outcomes in similar ways to more traditional HLE measures. Past work examining domain-specific learning activities has discriminated between formal and informal learning activities, with formal activities including didactic, instructional activities (e.g., writing letter or numbers) and informal activities including those in which academic content is less central (e.g., reading stories or playing board games). The extant research on these dimensions of math and reading activities indicates that these dimensions of enrichment activities relate to distinct math and reading skills (see Elliott & Bachman, 2018b, and Skwarchuk et al., 2014). In this work, measures of informal enrichment activities often still include structured activities, and some more research is needed to extend these domains of enrichment further and examine how these in-the-moment conversations about academic content relate to child learning. Although the extant research on math talk (Levine et al., 2010; Gunderson & Levine, 2011; Elliott et al., 2017; Susperreguy & Davis-Kean, 2016) and parental language input more generally (Hoff, 2003; 2013) would suggest that these conversations might yield opportunities for learning, more empirical work is needed to test this claim.

Finally, parents discussed many topics aside from those presented here during these interviews, including how they make decisions about when their children should start kindergarten, parental roles and the division of labor in two parent household, and relationships with family members and broader social networks. Although these topics lay outside of the scope of the present

dissertation, further exploration of these themes is necessary to gain a richer picture of low-SES children's contexts during early childhood.

Despite these limitations, this work demonstrates that many low-SES parents engage in high levels of home enrichment at home despite experiencing constraints on time and resources, yet many of these activities may not be accurately captured by conventional measure of the HLE. Furthermore, these findings highlight the importance of accounting for the broader family system, including other adults and children in the home, when considering parental behaviors.

4.0 GENERAL DISCUSSION

4.1 SUMMARY OF FINDINGS

This dissertation aimed to examine heterogeneity in the home enrichment practices of low-SES parents in order to uncover the factors that promote high levels of the HLE in the context of socioeconomic disadvantage. Specifically, I posed three central research questions. First, what contextual characteristics explain variability in home learning practices among low-SES families above and beyond income and parental education? Using a large dataset of children enrolled in Head Start, I found that children's vocabulary skills, parental age, and marital status were positively related to home enrichment. In general, child and family characteristics predicted more variability in the HLE than did parent factors, but the overall variability explained across domains was minimal.

Secondly, are there constellations of child, parent, and family characteristic characteristics that co-occur to either protect economically disadvantaged children from adverse outcomes or place poor children at greater risk for lower achievement? Some evidence indicated that the combination of behavioral problems with low social skills was particularly detrimental. However, I found little evidence of unique combinations across ecological levels, so parents' experiences are likely more idiosyncratic than quantitative analyses such as LPA can capture.

Finally, what factors do parents consider to be highly influential on their home enrichment practices in the context of socioeconomic adversity? Through qualitative interviews with low-SES families, I found that characteristics of the broader family microsystem as well as external factors like work schedules were related to the HLE, but many parents found ways to overcome these

challenges. Furthermore, across levels of SES, parents experienced financial strain and recognized their role in their children's learning as critical for their success.

In general, results from the quantitative and qualitative branches of this project were largely consistent. In many cases, parents' responses in the in-depth interviews echoed and shed further light on quantitative findings. As one example, parents' descriptions of how children's academic interests and behavioral regulation influenced their behaviors helped to contextualize the associations between these child-level characteristics and various metrics of the HLE observed in the survey data. However, the qualitative analyses often helped to explain unexpected findings from the quantitative analyses, such as the null associations between hours of employment and the HLE, which may be attributable to variability in other processes such as how parents are able to find the time or energy to engage in enrichment activities. Thus, the qualitative analyses conducted here were critical for interpreting and contextualizing the quantitative findings.

However, it is also important to note that several discrepancies were seen across studies, such as the qualitative findings regarding other siblings in the home and employment outside of the home despite nonsignificant associations between these variables and the HLE in quantitative analyses. These differences may be attributable to methodological issues with the home enrichment variables used in Study 1, such that these factors relate to the quality rather than quantity of enrichment at home. Alternatively, differences in the compositions of the samples utilized in each study may have resulted in divergent results. As noted in the sample description of Study 2, parents who were interviewed had much higher levels of income and education than parents who were included in Study 1, despite the fact that both groups were considered low-SES. It is possible that for the most socioeconomically advantaged parents in Study 2, contextual factors

were more influential on parenting practices, whereas these factors may have mattered less for the most disadvantaged. Future research is needed to unpack these discrepancies further.

4.2 IMPLICATIONS FOR EXTANT THEORETICAL FRAMEWORKS

The results of these studies have several implications for theory. Regarding theoretical accounts of how income relates to the HLE, the quantitative analyses reported here indicate that the family stress model may not be appropriate for understanding SES differences in enrichment practices in particular. Additionally, several pieces of evidence indicate that parental investment theory may also be lacking in nuance. As noted above, qualitative analyses revealed that many parents found unique ways to overcome these challenges related to scarce resources, and in some cases parents described investing more in children because of this perception of strain. Thus, more detailed empirical accounts of the ways that parental agency and active decision making shape the HLE, even in the context of low SES, are needed.

Relatedly, little theoretical work has sought to explain how education shapes parenting, and yet the quantitative analyses reported here indicate robust associations between parents' educational attainment and their reported enrichment activities at home, even among a low-income sample. However, from parents' own descriptions of their education, it is clear that educational attainment can relate to parenting in a variety of ways spanning from imparting concrete skills and knowledge that parents can use with their children to increasing parents' access to new opportunities such as employment. Educational attainment was also a very central component of many parents' identities, and so more work exploring these various pathways is needed to

understand the mechanisms underlying these well documented links between education and the HLE.

More generally, these findings conflicts with past theoretical frameworks such as Lareau's (2002; 2003) work, which suggested that middle- and upper-class parents use their knowledge of the educational system to structure children's contexts in a way that maximize learning, or "concerted cultivation." In contrast, Lareau argued that poor and working class parents viewed themselves as less responsible for their children's learning and thus provided less structure in their environments in order to allow for the "accomplishment of natural growth." The interview study described here casts some doubt on this characterization of low-SES parents, as many of the under-resourced parents in this sample were extremely intentional in their goals and resulting practices to support their children's learning. Although this theoretical perspective was not a guiding framework for this study, it is important to note the implications that these findings have for this common lens for studying low-SES parents.

4.3 RECOMMENDATIONS FOR FUTURE WORK

From these studies, I identify three central recommendations for future research. First, these two studies clearly demonstrate that home enrichment activities are not a parental behavior but rather a dyadic interaction occurring within the context of the broader family system. More work should model the HLE as a dyadic process, such as by measuring children's contributions to these interactions in meaningful ways, and seek to explore the differing ways in which other family members and family processes shape these interactions. By doing so, future research can obtain a more accurate view of the processes through which parents support their young children's learning

at home and also work to combat biases that place blame on parents when these activities are not occurring.

Secondly, this dissertation revealed considerable methodological concerns regarding the HLE, particularly among low-SES families. Results of the qualitative study in particular indicated that the frequency-based, survey measures of the HLE often used in past research may not accurately capture the types of everyday interactions that low-SES parents engage in with their children to support their learning. Most work examining SES differences in parental enrichment and involvement focuses solely on variability in the quantity of activities, such that low-SES parents may engage in certain activities less frequently. However, we know less about whether there are qualitative differences in engagement, such that low-SES parents may engage in different types of activities than their higher-SES peers. Developing more sensitive measures that can capture the myriad ways that parents might support their children's learning at home, including the types of activities typically included in HLE scales as well as other, more informal interactions described here, will pose a significant challenge for future work. Exploring these issues is critical for both basic descriptive research to inform extant theoretical perspectives as well as more applied research efforts aimed at increasing parental enrichment among low-SES parents.

Finally, this work indicates the value of strengths-based research for understanding parenting in the context of adversity. It is clear from past empirical and theoretical research that low-SES families face considerable and unique challenges, but focusing on these challenges alone without addressing the ways that parents overcome them overlooks the variability in parenting and may perpetuate biases against low-SES parents. In addition to this work, more research addressing the intentional, active ways that parents overcome these barriers that stem from low income or educational attainment is needed. By adopting this type of perspective, future research will be

better suited to working with under-resourced parents and families to capitalize on the resources and skills available to them and, as a result, to improving outcomes for low-SES parents and children.

APPENDIX A FACES 2009 ITEMS

Home Learning Activities
In the past week, have you or someone in your family done the following things with [CHILD]?
Told (him/her) a story?
Taught (him/her) letters, words, or numbers?
Taught (him/her) songs or music?
Worked on arts and crafts with (him/her)?
Played with toys or games indoors?
Played a game, sport, or exercised together?
Took (him/her) along while doing errands like going to the post office, the bank, or the store?
Involved (him/her) in household chores like cooking, cleaning, setting the table, or caring for pets?
Talked about what happened in (Head Start/Kindergarten)?
Talked about TV programs or videos?
Played counting games like singing songs with numbers or reading books with numbers with (him/her)?
Played a board game or a card game with (him/her)?
Played with blocks with (him/her)?
Counted different things with (him/her)?

Home Reading Practices
How many times have you or someone in your family read to [CHILD] in the past week?
On the days someone reads to [CHILD], about how many minutes per day is (she/he) read to?
About how many children's books does [CHILD] have in your home now, including library books? Please only include books that are for children.

Out of Home Activities
In the past month, that is since [(MONTH)/(DAY)], has anyone in your family done the following things with [CHILD]?
Visited a library?
Gone to a movie?
Gone to a play, concert, or other live show?
Gone to a mall?
Visited an art gallery, museum, or historical site?
Visited a playground, park, or gone on a picnic?
Visited a zoo or aquarium?
Talked with [CHILD] about (his/her) family history or ethnic heritage?
Attended an event sponsored by a community, ethnic, or religious group?
Attended an athletic or sporting event in which [CHILD] was not a player?
Attended a church activity or church school?

Parental Depression
I am going to read a list of ways you may have felt or behaved. Please tell me how often you have felt or behaved this way during the past week.
Bothered by things that don't usually bother you
You did not feel like eating, your appetite was poor
You could not shake off the blues even with help from your family or friends
You had trouble keeping your mind on what you were doing
Depressed
That everything you did was an effort
Fearful
Your sleep was restless
You talked less than usual
Lonely
Sad
You could not get "going"

Food Insecurity
For each statement I read, please tell me if it was often true, sometimes true, or never true for {you/your household}in the last 12 months/ since [MONTH AND YEAR OF LAST INTERVIEW]
The food that {I/we} bought just didn't last, and {I/we} didn't have money to get more.
{I/We} couldn't afford to eat balanced meals.
In the last 12 months}, did {you/you or other adults in your household} ever cut the size of your meals or skip meals because there wasn't enough money for food?
How often did this happen?
In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?
In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?

Neighborhood Violence
For each of the following items, please tell me how often each one happened to you during the past year
I saw non-violent crimes take place in my neighborhood – for example, selling drugs or stealing
I heard or saw violent crime take place in my neighborhood
I know someone who was a victim of a violent crime in my neighborhood
I was a victim of violent crime in my neighborhood.

Social Support
If I need to do an errand, I can easily find someone to watch [CHILD]
If I need a ride to get [CHILD] to the doctor, friends or family will help me
If [CHILD] is sick, friends or family will call or come by to check on how things are going
If [CHILD] is having problems at (Head Start/Kindergarten), there is a friend, relative, or neighbor I can talk it over with
If I have an emergency and need cash, family or friends will loan it to me

If I have troubles or need advice, I have someone I can talk to

APPENDIX B INTERVIEW PROTOCOL FOR STUDY 2

1. To start out, I just want to talk generally about your home and your family.

    a. Can you tell me a little bit about what your typical day looks, like how you spend your morning, afternoon, and evening?
    b. On days when you're working, when do you and your child get to spend time together? How do you typically spend your free time together?
    c. What about on days when you aren't working, what kind of things do you and your child do together?
    d. When deciding how to spend your time with this child, what are some of the factors that come into play? (Probe for time limitations, other siblings, etc)

2. Great, thanks for catching me up on your family. I want to talk next about the family you grew up in.

    a. As you've started a family of your own, have your family members been involved at all? How? (Probe about financial help, practical help like babysitting, advice, etc).
    b. In thinking about how you were raised when you were young, are there things that you remember as being really positive or that you wanted to do as a parent too?
    c. Is there anything about how you were raised that you wanted to make sure you changed as a parent? Why? How have you tried to do so?

3. Next, I want to hear a little more bit about your child.

    a. How are you thinking about the transition to kindergarten? What are your hopes as you child starts school? Is there anything that you are worried about?
    b. What do you think are some of the most important things for him/her to be ready for school?
    c. Why are these benchmarks and skills that you mentioned important? Are they something that you heard from someone else, like a family member or teacher?

4. You mentioned some really important skills - how do you think your child is learning these things? What are some activities and experiences that might help him/her become more ready to start school?
    a. How are you thinking about your role in helping your child be ready to start kindergarten?
    b. Are there other people who are involved in making sure that your child is ready to start school? (probe: other parent/adults in the household, preschool teacher, broader social networks).

5. Are there any activities happening at home that might help your child learn to read? (recognizing letters, learning letter sounds, basic reading principles) What kinds of activities?
    a. Can you tell me a little bit more about the most recent time you engaged in one of these reading activities (e.g., reading together, identifying letters, etc)?
    b. When did this occur? Who else was involved? What had you been doing beforehand?
    c. How did you decide to do this activity? How long did it last? Was your child interested?
    d. How often are you able to do stuff like that? Would you say this is typical of how these activities normally go?
    e. When you're able to make activities like that happen, what helps you squeeze that in? Other times what gets in the way?

6. Are there any activities happening at home that might help your child learn math? (counting, measurement principles, patterns, spatial reasoning, geometry) What kinds of activities?
    a. Can you tell me a little bit more about the most recent time you engaged in one of these math activities (e.g., counting, playing a board game, or talking about money)?

    b. When did this occur? Who else was involved? What had you been doing beforehand?
    c. How did you decide to do this activity? How long did it last? Was your child interested?
    d. How often are you able to do stuff like that? Would you say this is typical of how these activities normally go?
    e. When you're able to make activities like that happen, what helps you squeeze that in? Other times what gets in the way?

7. Have you thought at all about how different activities might support children's growing reading and language skills compared to math skills? Thinking about your own practices, do you find you tend to prioritize one type activity over another?

8. My last set of questions is about all of these different types of activities that might help prepare your child for kindergarten.

    a. What's your motivation behind engaging in these kinds of activities? Parents have a lot of different reasons for doing what they do, so I just want to hear more about how you're thinking about these kinds of educational activities.
    b. How much of your time together do you think you spend in these types of activities? Are you happy with this balance? Are there things that you wish you could do more/less of?
    c. Can you think of any changes that would make engaging in these types of activities easier? (probe – work schedule, less housework, etc).

APPENDIX C DEMOGRAPHIC SURVEY FOR STUDY 2

Background Questionnaire

How old are you? _____How old is your child? _____
What is your relationship to this child?

- ○ Mother
- ○ Father
- ○ Other (please specify) _____

Which of the following groups best describes your race/ethnicity? Please select one answer only.

- ○ Asian or Pacific Islander
- ○ Black or African American
- ○ White
- ○ Spanish, Hispanic, or Latino
- ○ American Indian or Alaskan Native
- ○ Other (please specify) _____

What is your current marital status?

- ○ Single/Never Married
- ○ Married
- ○ Cohabiting/Living as married
- ○ Divorced/Separated
- ○ Other (please specify) _____

What is the highest degree or certificate you hold? Please choose one answer only.

- ○ None (Please specify highest grade completed) _____
- ○ H.S. diploma or GED
- ○ Nursing Certificate
- ○ Some college, but no degree
- ○ Associate Degree
- ○ Bachelor's Degree
- ○ Some graduate work
- ○ Master's Degree
- ○ M.D., PH.D., Law, Dental, or other advanced degree
- ○ Other (Please specify) _____

How much is your annual average household salary? Please count income from all individuals in your household.

- ○ Less than $5,000
- ○ Between $5,000 and $9,999
- ○ Between $10,000 and $14,999
- ○ Between $15,000 and $19,999
- ○ Between $20,000 and $24,999
- ○ Between $25,000 and $29,999
- ○ Between $30,000 and $34,999
- ○ Between $35,000 and $39,999
- ○ Between $40,000 and $44,999
- ○ Between $45,000 and $49,999
- ○ Between $50,000 and $54,999
- ○ Between $55,000 and $59,999
- ○ Between $60,000 and $64,999
- ○ Between $65,000 and $69,999
- ○ Between $70,000 and $74,999
- ○ Between $75,000 and $79,999
- ○ Between $80,000 and $84,999
- ○ Between $85,000 and $89,999
- ○ Between $90,000 and $94,999
- ○ Between $95,000 and $99,999
- ○ $100,000 or more

Are you currently working at a job for pay?

- ○ Yes
- ○ No

If yes, how many hours per week do you usually work? _____
How many adults live in your home? ____ How many children live in your home? ____

In the last month, how often did you and your child engage in the following activities?

	The activity did not occur	*Less than once a week, but a few times a month (1-3 times)*	*About once a week*	*A few times a week (2-4 times)*	*Almost daily*
Using number or arithmetic flashcards	1	2	3	4	5
Identifying names of written numbers	1	2	3	4	5
Playing with number fridge magnets	1	2	3	4	5
Counting objects	1	2	3	4	5
Sort things by size, color or shape	1	2	3	4	5
Counted down (10, 9, 8, 7. . .)	1	2	3	4	5
Learning simple sums (i.e., 2 + 2 = 4)	1	2	3	4	5
Printing numbers	1	2	3	4	5
Talking about money when shopping (e.g., "which costs more?")	1	2	3	4	5
Measuring ingredients when cooking	1	2	3	4	5
Being timed	1	2	3	4	5
Playing with calculators	1	2	3	4	5
Making collections	1	2	3	4	5

	The activity did not occur	*Less than once a week, but a few times a month (1-3 times)*	*About once a week*	*A few times a week (2-4 times)*	*Almost daily*
"Connect-the-dot" activities	1	2	3	4	5
Using calendars and dates	1	2	3	4	5
Having your child wear a watch	1	2	3	4	5
Using number activity books (ex. "color-by- number" book)	1	2	3	4	5
Reading number storybooks	1	2	3	4	5
Playing board games with die or spinner	1	2	3	4	5
Playing card games	1	2	3	4	5
Picking up sticks, objects, etc.	1	2	3	4	5
Movement songs (i.e., Itsy Bitsy Spider)	1	2	3	4	5
Playing musical instruments	1	2	3	4	5
Putting pegs in a board or shapes into holes, playing with puzzles	1	2	3	4	5
Threading beads	1	2	3	4	5
Playing with "Playdoh" or clay	1	2	3	4	5
Playing with blocks	1	2	3	4	5

	The activity did not occur	*Less than once a week, but a few times a month (1-3 times)*	*About once a week*	*A few times a week (2-4 times)*	*Almost daily*
"Paint-by-number" activities	1	2	3	4	5
Tying shoes	1	2	3	4	5
Buttoning buttons	1	2	3	4	5
Playing "store"	1	2	3	4	5
Coloring, painting, writing	1	2	3	4	5
Playing "teacher"	1	2	3	4	5
Doing crafts involving scissors and glue	1	2	3	4	5
Watching educational TV shows	1	2	3	4	5
Using educational software (e.g. Reader Rabbit, Disney Preschool)	1	2	3	4	5
Building Lego or construction set (Duplo, Megablocks, etc.)	1	2	3	4	5
Identifying names of written alphabet letters	1	2	3	4	5
Identifying sounds of alphabet letters	1	2	3	4	5
Printing letters	1	2	3	4	5

APPENDIX D FINAL CODEBOOK FOR STUDY 2

Table 12. School and home codes

Code	Description	Examples
Following along with teacher/school	Parent describes role as helping out, facilitating, reinforcing, reiterating, or complementing what child is learning in the classroom.	"I mean I kind of just follow along with what the teacher is telling me to do"
B: Parent is responsible for learning	Parent describes own role as deeply important for child's learning, such as leading the efforts for child or unique contributions that the home makes	"I'm sort of his outlet to the world for learning, so if I'm not teaching him, then he's not learning" "I think just being there every day helps, being around other kids, hearing letters and numbers all the time"
B: Child is learning a lot in preschool	Parent expresses that child is gaining a lot of experience and skills from preschool, including academic skills but also behavioral or social skills	"He's in a really great program, so I think that helps with him being ready to start"
B: Child may be behind because not attending preschool	Parent expresses concern that child is not attending preschool (or only attending for a limited number of hours or a certain number of years/months)	"I think she's at a little bit of a disadvantage having only gone to preschool for one year" "I'd feel better if the program wasn't just three days a week"
B: Child is not learning from preschool	Parent expresses concern that preschool is not beneficial for child's learning	"They just do so much behavior management, it's like is this even worth it?"
Supplementing what child is learning in school	Parent describes extending beyond what child is learning in school or adding to that. This should not be coded for increases in the *quantity* of instruction but rather adding something of a different *quality*	"If certain things come up that they aren't learning at school, we'll go over it together" " I try to help push him a little bit more or support him with other activities that he wants to do from home."

Wanting child home with you	Parent wants to spend more time with child rather than at preschool	"I mean he's my youngest so I just want as much of that little kid time that we have left to be spent together"
Soliciting information on kindergarten	Parent is seeking out information about kindergarten either by contacting the school, preschool teachers, friends, or other sources	"I talked to a friend of mine who has a 6 year old just to see you know how did that transition go? What do I need to do?"
Working on homework	Parent describes doing additional school work with child from the classroom, including homework as well as work that is optional	"His teachers send home packets, so last time we had a packet for rhyming words. So this time we have a packet for identifying letters, the sounds they make, and words that start with that letter. "
Talking about school work	Parent and child talk about academic work completed at school, including going through work completed at school that was brought home (but not homework)	"So we open up her folder with all her school work she did and go over what she worked on during the day and what she learned"
Talking about school day	Parent and child talk about school day more generally	"So like if he had like a little bit of an off day we'll talk about why he had an off day. If he did good that day, you know, I just tell him to keep up the good work. "
B: Kindergarten has changed	Parent describes how kindergarten is different from in the past (either for themselves or even compared to older child)	"So I'm just not sure where she should be because things are so different now"
B: Expectations are too high	Parent expressive concern or frustration with school's expectations for child in kindergarten	"But I looked at her teacher and I couldn't help but giggle because I'm like this is kindergarten. She's not going to college next year. So, she's okay"
Goals: Don't Fall Behind	Parent doesn't want child to be behind when starting school or in general in school (negative framing)	"I didn't want him to get to school and feel like he doesn't know anything or like the other kids are more advanced than he is"
Goals: Be Prepared	Parent wants to make sure child is on par with peers or adequately prepared (neutral framing)	"I really want to make sure that she has all the skills she needs"
Goals: Succeed	Parent wants child to do well in school, either in kindergarten or in general in school (positive framing)	"I hope he does well and I want him to excel"

Goals: Like School/Learning	Parent describes other goals related to school for child's school experience, including liking school or liking learning. Only code when explictly non-academic, otherwise code as doing well	"I also feel like I wanted her to be extremely ready and happy, not be like no I don't want to go to school I miss mommy. I want her to be like yes mom I want to go to school"
Goals: Make friends	Parent describes entirely non-academic goals for school such as making friends.	"Being able to make friends and know how to get along with other kids"
B: There's more than just academics	Parent expresses beliefs about the importance of skills other than just math and reading	"But I also just want her to be a good person, to be independent, to be happy"
Don't want to over do it	Parent expresses concern about pushing child too far academically	"And I just don't want to confuse her. I don't want to give her too much."
Early skills	Parent describes the importance of children's early skills or how child will need to know these skills	"I mean this is what she's going to be doing the rest of her life, you know."
Experiences with older child	Parent discusses older sibling's transition to kindergarten or educational experiences more generally that impact their thinking about this child	"I try to compare her to my son and think about well what did he know when he was her age"
Want child to have a better life	Parent wants more for their child than they currently have	"I want him to have a better life and have more opportunities than I've had"
Want to raise a good human	Parents describes non-academic goals for child's success (e.g., kindness, hardworking, happy)	"I want them to be successful, and if that means college and education and all that, great, but my main goal is just that they are comfortable and stable and doing well"

Table 13. Activity codes

Code	Description	Examples
Has social/behavioral skills	Parent gives example of how child is socially or behaviorally ready for school	"He really is a leader and is great at making friends"
Has literacy skills	Parent gives example of how child has developed literacy or letter knowledge necessary for school	"She can spell her name and can write most of her letters"
Has number skills	Parent gives example of how child has developed number or math knowledge necessary for school	"So as of now he can count to 20, sometimes 30 if we help"
Needs social/behavioral skills	Parent gives example of social or behavioral skills child still needs for school	"She's still just so shy"
Needs literacy skills	Parent gives example of literacy or letter knowledge child still needs for school	"I want her to be able to write her name but she's really struggling with that"
Needs number skills	Parent gives example of number or math knowledge child still needs for school	"Counting is a bit of an issue, usually we get to 6 and then they're all out of order after that"
Needs other skills	Parent describes other area of improvement for child before starting school	"He's still really struggling with speech, and he's so hard to undertand sometimes, so I want to work on that before we start school"
Reading at bedtime	Parent describes reading books before bedtime with the child	"So from 8 to 9 we usually read before the kids go to bed" "Every night he pick out his books while I put her to bed, and then I'll read with him after"
Reading throughout the day	Parent describes reading books throughout the day with the child	"Sometimes when she gets home from preschool she'll want to read with me, so we'll do that"
Library	Parent or child interacts with library, including going to the library, checking out books, etc, with child	"We try to stop by the library after school and just spend some time reading there"
Talking about letters	Parent describes any activities where the child and parent talk about letters, word, sounds, etc., outside of the context of workbooks or flashcards or more formal academic materials	"Like even when we're driving, he'll point out letters"
Academic work	Parent describes using workbooks, flashcards, etc.	"We have flashcards all over the house and just use them whenever"
Writing letters	Parent and child write letters together	"We'll sit down and I'll write the letter and she'll trace it"

Writing numbers	Parent and child write numbers together	"And he, on every page, would write a different number plus a number, and he would just ask me."
Playing with fridge magnets	Child plays with letter or number magnets or other similar alphabet toys	"He has these letter magnets and will spell out words on the fridge"
Counting while playing	Parent and child count or talk about math concepts during other activities	"We do a lot of counting, and like even just outside, like if he sees something he's interested in, I'll be like, "Well, how many is that?"" "We'll count the stairs, we'll count pages in a book."
Identifying numbers	Parent describes any activities where the child and parent talk about written numbers outside of the context of workbooks or flashcards or more formal academic materials	"she was an antibiotic for a sinus infection for a while. So she wanted to do the little dropper thing. And it was like 7.5 grams of medicine. And she would like – I would tell her when to stop, like at the number five."
Math with money	Parent talks about math in the context of money or shopping	"I make her count money. I teach her four quarters, here's two quarters that's a dollar." "I mean we do play store sometimes, and we play with play money, and we'll try to teach them this is $1.00. This is $5.00."
Math while cooking	Parent talks about math in the context of cooking or baking	"We'll measure out ingredients and count out, one cup, two cups"
Math games	Child plays games that involve math	"We do like to play board games a lot"
Spatial activities	Child engages with activity to help build spatial skills, including puzzles, blocks, etc	"He loves to do puzzles and so we spend a lot of time doing that"
Math apps	Child plays apps or computer games that teach math skills	"He has this new computer game with counting that he really loves to play"
Reading apps	Child plays apps or computer games that teach reading skills	"So the app will like point out different letters and play the sounds that they make"
Educational apps	Child plays apps or computer games that teach unspecified academic skills	"She plays this preschool essentials game that seems like it's really helping"
Educational TV	Child watches educational TV shows	"We don't have cable but we do have PBS and she'll watch that all the time"

Prioritizing child's learning	Parent describes times when they stop what they are currently doing or working on in order to interact with the child.	"I try to stop myself regardless of what I'm doing when she comes to me with questions" "And so even if we're out at the grocery store I'll kind of stop and slow down and ask her to point out letters and numbers"
Multitasking	Parent describes interacting and engaging with child while completing some other task, including interacting with another sibling (with a different activity), doing housework, or relaxing	"So I'll be cleaning up and we just keep talking about what's going on at school" "It just kind of comes up as we're going through our day"
Going with the flow	Parent describes flexible approach to parenting and lack of a firm schedule in their activities	"We don't really set specific times where it's like, "We have to get this done and do this right now, and we're going to read a book right away." It's just, "We'll get to it later."
Finding everyday moments	Parent describes sneaking learning into everyday activities. This should not be coded every time an activity occurs in an everyday moment but rather refers to the parent intentionally trying to incorporate learning into day-to-day play or conversations	"We're so busy during the day so I try to find ways to just sneak it in"
Regulating child's behaviors	Parent engages in activities in order to help regulate the child's behavior"	"Sometimes we'll read just when I know she needs a minute to calm down"
Keeping child motivated	Parent's attempts to keep child engaged in learning activities	"I wanted her to count, so I told her she could eat as many pieces of candy as she could count" "Whatever we need to do to make it more fun, we do. We read in silly voices." "She'll see a green car so I ask Okay how many other green cars are there?"
Asking academic questions	Parent describes asking questions to their child to test or build their academic knowledge	""Okay, do you see any other letters that are in your name?" And she'll go through them, "Oh, what's this letter?" "What do you think it is?""
Responding to child questions	Parents answers child's questions to facilitate their learning. This code can be applied even if parent doesn't explicitly say they are responding to the questions but it is implied that they respond	"He'll point out letters on his shirt and ask me what they are and what sound they make"

Child initiates activities	Parent describes that child initiates learning-related activities that they engage in together	"She'll grab her book and run over to me asking me to read with her" "Sometimes he will just start counting things on his own so I'll sit down with him and just help him out"
Responding to child's interests	Parent describes intentionally structuring or choosing tasks or activities such that they will be interesting to the child or based on child's interests	"She likes to color and she likes to write. And so a lot of times I'll buy more artistic things for her than I did with my son" "And I was like oh, she would really love this. And I got it. "
Letting child lead	Parent describes letting child lead the interaction/schedule	"Well, often, especially on the weekends, we will ask them. Now the they're old enough, we say what would you want to do the mostSo we give them some choice."
Work interfering	Parent describes not engaging with child or interacting with child in the way that they would like because of issues related to their work schedule or their partner's work schedule	"I mean on the days that I work it can be really hard to check in with her" "now I'm working Saturday mornings so we may have to postpone swimming till summer when the schedule fits my schedule."
Other tasks interfering	Parent describes not being able to spend time with child because of other tasks, errands, or housework that needs to get done	"There are just things that have to be done, we need groceries, we can't read right now" "Some days I feel like I don't have the time, especially like if I have a lot of school work to do."
Other siblings interfering	Parent cannot spend time with target child because of other children in the house	"If I'm trying to do it with other people in the house that's usually a no-go. We can probably get five minutes through and then, "Mom, so and so is doing this to me." " "A lot of times, because he's older and she's younger, it's hard because she can't do as much as he does."
Parent energy interfering	Parent describes not having the energy to engage with child	"It depends on how I feel. If I'm tired I'm just gonna not want to get up off the couch probably. It usually takes me a couple of days to recover after working. "
Losing track of time	Parent describes getting off schedule or mismanaging time as a reason why activities don't occur	"Well, one thing I've learned about myself that I need to work on is this includes spending time with time management. I need to work on that."

Child interfering	Parent is unable to engage in activities because of child, including social or behavioral issues, inattention, lack of interest, etc	"He loses focus so fast because he's in school all day, and then he comes home and he wants to play with his toys” "'On the days when she doesn't nap, we aren't doing anything on those days."
Parent knowledge interfering	Parent is not sure how to engage with child in a particular way, such as how to make an activity interactive or educational for child	"There probably are more opportunities that I'm not paying attention to or recognizing." "I like to watch the news in the morning, so I usually make sure I do that, which sometimes means we don't do a story"
Other interference	Parent describes anything that interferes with these activities that does not fit in the above categories	"I'm home with them all day so sometimes I feel like I don't value it, whereas if I was working, I think I might be more motivated to really make that time count"

Table 14. Family and resource codes

Code	Description	Examples
Learning with siblings	Child engages in learning activities with other siblings	"Or my son a lot of times when he's home doing homework and he's like, such and such, he'll be like, Mackenzie, do you know what this means? Or he'll be like, well, count this. And he'll do little stuff with her, too."
Learning with spouse	Child engages in learning activities with other parent	"He'll point out letter and numbers to her while they're playing"
Learning with other family	Child engages in learning activities with other family members (e.g., grandparents, aunts, uncles) or with family friends	"If he was to like go to like his uncle or his grandma's house or something, you know, like I would just let them know like, "Oh, you know, if you have some time have him do this, so he can show you the way he knows how to do or something," just to try to get everybody involved and keep up."
Family providing gifts	Family provides gifts for children or parents, including paying for groceries, classes, or other things that the parent did not necessarily ask for	"But it's kind of great like for example, they got her these children theater tickets" "But, you know, I bought you four gallons of milk. Thanks. Now I don't have to."
Family loaning money	Family provides financial help to parent	"'I budget pretty well, so I mean if I needed something desperately at the last minute my mom never has a problem giving it to me, because I give it right back to her."
Family regularly babysitting	Family members provide childcare on a regular basis, such as when parent is working	"So that's like I'm gone all day so my mom comes over sleeps over the night before so I can just bang, leave out at 8:00 in the morning." "My mother-in-law is the primary care person for the kids when we're not home. "
Family occasionally babysitting	Family members are available to watch children on special occasions	"Babysitters are kinda scarce. I mean they'll do it on occasion. I mean we never really get to go out, which we just kind of like, enjoy the time that we have with our kids, but if and when we do on a random occasion aside, like have a date night or go out, one of the two usually will take them, or my sister will come over. So we do get a break every now and then."

Family provides other instrumental support	Parent provides specific examples of concrete things that family members provide for them that do not fall into any of the above categories	"Sometimes I'll kind of utilize it and be like oh are you by any chance going to the grocery store and we'll like go to the grocery store too 'cause I don't have a vehicle." "She also will come over and help with laundry if she knows I've had a busy week" "Just to know that I have her and she's available and willing to listen to me and just talk to me is so helpful"
Family provides emotional support	Parent receives general support, including emotional support, friendship, approval, etc.	"They help with everything, they're just always willing to do whatever we need for the kids"
Lack of support from family	Parent perception of needing more support from family or others	"And I didn't really had a whole lot of support when I had the kids. We're very close, but even living here, they're not the come and take care of me type."
Education informing parenting	Parent's own educational experiences informed their parents style or views of parenting. This code can also be applied when parent is describing how their career or work-related experiences informed their parenting	"I went to school for a lot of education stuff, so I'm also just kind of aware of where he should be at."
Limited education	Parent describes limitations due to their own (or other family member's) level of education	"'As far as school, he doesn't really – and he didn't even graduate high school or get a GED. "
Education is important	Parent describes own values around education, including general statements describing the importance of education as well as more specific reasons why they hold this belief or purposes that education serves	"School is just so important and such a clear gateway"
Dealing with financial constraints	Parent discusses challenges or decision making related to income or financial costs, including for other family members or family of origin	"Cost does factor into some stuff. Something like going to Chick-fil-a for dinner so they can play or going to a movie is a less-common thing because it's more of a treat" "Growing up we did a lot that was fun and outside, but I never realized we were doing that because it was free, and we couldn't afford to go to an amusement park or something like that"
Cars and Transportation Challenges	Parent discusses challenges or decision making related to transportation	"We only have the one car, so a lot of my day is spent picking people up and dropping them off" "If I can't get a ride, it takes me an our to get home by bus"

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